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TRANSACTIONS

OF THE

DEPARTMENT OF AGRICULTURE

STATE OF ILLINOIS,

WITH REPORTS FROM

COUNTY AGRICULTURAL BOARDS,

FOR THE YEAR 1880.

EDITED BY

S. D. FISHER, Secretary.

VOL. XVIII OLD SERIES. VOL. X NEW SERIES.

Vols. 1, 2, KENNICOTT; 3. FRANCIS; 4, 5, 6, 7, 8, REYNOLDS;
9, 10, 11, 12, GARLAND; 13, 14, 15, 16, 17, 18, FISHER.

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LETTER OF TRANSMITTAL.

To His Excellency, SHELBY M. CULLOM, *Governor of Illinois:*

SIR—I have the honor to transmit herewith the report of the State Board of Agriculture, for the year 1880; also sundry papers relating to agriculture.

Very respectfully,

SPRINGFIELD, March, 1881. S. D. FISHER, *Secretary.*

MEMBERS

OF THE

ILLINOIS STATE BOARD OF AGRICULTURE,

FOR 1881-82.

President.....J. R. SCOTT.....Champaign
Ex-President.....D. B. GILLHAM.....Upper Alton
Secretary.....S. D. FISHER.....Springfield
Treasurer.....JOHN W. BUNN.....Springfield

Vice-Presidents:

1st District—Lewis Ellsworth....Naverville
2d District—H. D. Emery.....Chicago
3d District—John P. Reynolds....Chicago
4th District—Geo. S. Haskell.....Rockford
5th District—J. L. Moore.....Polo
6th District—Sam'l Dysart..Franklin Grove
7th District—Chas. Snoad.....Joliet
8th District—Emory Cobb.....Kankakee
9th District—D. W. Vittum, Jr.....Canton
10th District—E. B. David.....Aledo
11th District—David E. Beaty....Jerseyville
12th District—J. W. Judy.....Tallula
13th District—W. M. Smith.....Lexington
14th District—Wm. Voorhies, Jr....Voorhies
15th District—E. H. Bishop.....Effingham
16th District—B. Pullen.....Centralia
17th District—David Gore.....Carlinville
18th District—Jas. M. Washburn..Carterville
19th District—John Landrigan.....Albion

LIST OF COUNTIES

Comprising Congressional Districts in Illinois.

First District—The First, Second, Third, Fourth, Fifth, Sixth and Seventh wards of the city of Chicago, the Towns of Hyde Park, Lake, Lyons, Riverside, Lemont, Palos, Worth, Calumet, Orland, Bremen, Thornton, Rich and Bloom, in Cook county, and the county of DuPage.

Second District—The Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth and Fifteenth wards of the city of Chicago.

Third District—The Sixteenth, Seventeenth, Eighteenth, Nineteenth and Twentieth wards of the city of Chicago, the towns of Cicero, Proviso, Jefferson, Leyden, Lake View, Evanston, Niles, Maine, Elk Grove, Schaumburg, Hanover, Barrington, Palestine, Wheeling, Northfield and New Trier, in the county of Cook, and the county of Lake.

Fourth District—Kane, DeKalb, McHenry, Boone and Winnebago.

Fifth District—Stephenson, JoDaviess, Carroll, Whiteside and Ogle.

Sixth District—Lee, Bureau, Putnam, Henry and Rock Island.

Seventh District—LaSalle, Kendall, Grundy and Will.

Eighth District—Kankakee, Iroquois, Ford, Livingston, Woodford and Marshall.

Ninth District—Stark, Peoria, Knox and Fulton.

Tenth District—Mercer, Henderson, Warren, Hancock, McDonough and Schuyler.

Eleventh District—Adams, Brown, Pike, Calhoun, Greene and Jersey.

Twelfth District—Scott, Morgan, Cass, Menard, Sangamon and Christian.

Thirteenth District—Mason, Tazewell, McLean, Logan and DeWitt.

Fourteenth District—Macon, Piatt, Champaign, Douglas, Coles and Vermilion.

Fifteenth District—Edgar, Clark, Cumberland, Moultrie, Shelby, Effingham, Jasper, Crawford and Lawrence.

Sixteenth District—Montgomery, Fayette, Bond, Clinton, Washington, Marion and Clay.

Seventeenth District—Macoupin, Madison, St. Clair and Monroe.

Eighteenth District—Randolph, Perry, Jackson, Union, Williamson, Johnson, Pope, Massac, Pulaski and Alexander.

Nineteenth District—Richland, Wayne, Edwards, Wabash, Jefferson, Franklin, Hamilton, White, Saline, Gallatin and Hardin.

ERRATA.

Page 1, fourth line from the top, should read: "Since close of Winter Meeeting of 1880," instead of "1878."

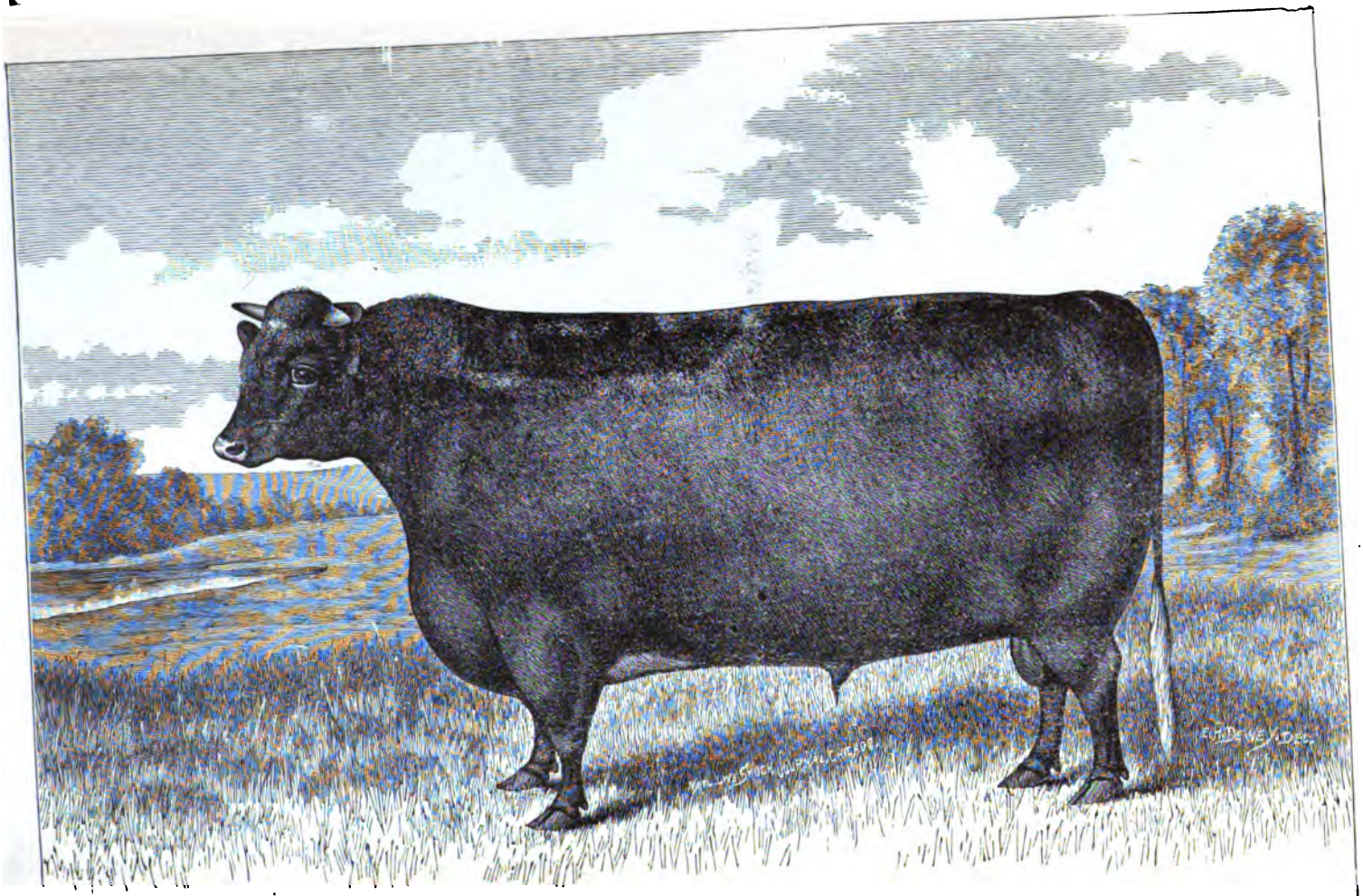
Page 5, fifth line from top, should read: "Wednesday, September 29, 1880," instead of "1881."

TABLE OF CONTENTS.

PAGE

Agricultural statistics as returned by assessors 472
Agricultural statistics for 1879 315
Awarding committees Fat Stock Show 73
Awards, Fat Stock Show 1880 147
Awards at the State Fair, 1880 9
Beef cattle 577
Blight in plants, second annual report, by T. J. Burril 433
Botanist State Board of Agriculture, second annual report 433
Breeding of animals exhibited at Fat Stock Show, 1880 76
British agricultural societies and shows 595
Canada thistles 590
Catalogue of stock Fat Stock Show 119
Convention of delegates 5
Cost of production, Illinois crops 524
Crop correspondents, names and post-office address 488
Crop prospects 447
Crop statistics, report of committee 445
Crop statement, average yield, value, etc 540
Crops for 1880 474
Crops in 1880, acres in cultivation 569
Exhibit Illinois agricultural fairs, 1880 281
Experiments at Illinois Industrial University 409
Fat Stock Show, 3d annual report 69
Fat Stock Show—Financial exhibit 279
Fat sheep 579
Hog cholera, 1880 583
Hog product, 1880 575
Hygrometer—Directions for preparing 522
Illinois State Fair, 1880 9
Illinois Agricultnral Fairs, 1880 281
Illinois Cane Growers and Sugar Makers' Association 402
Illinois crops for 1880 474
Illinois crops, cost of production 524
Illinois Industrial University—experiments 409
Illinois State Fair and Fat Stock Show 279
Meetings during the Fair 1
Meetings during the Fat Stock Show 65
Meteorological observations, from January to December, 1880 493
Minutes of the committee of arrangements 185
Paris Universal Exposition, 1878—report of Samuel Dysart 597
Railroad arrangements for State Fair, 1880 198
Railroad arrangements for Fat Stock Show, 1880 198
Reports of awarding committees Fat Stock Show 101-121
Reports from county agricultural boards 242
Report of committee on crop and live stock statistics 445
Report of reception committee 186
Report of committee on location of State Fair 200
Report of pure bred stock exhibited at the fairs of 1880 300
Retention of the afterbirth in the cow, by N. H. Paaren, M. D 412
Secretary's report 615

PAGE.
Secretary's report—Fat Stock Show..... 154
Sheep killed by dogs..... 586
Sorghum, by Prof. A. H. Weber 417
State Dairymen's Association, seventh annual meeting..... 343
State Fair and Fat Stock Show—report of exhibition, 1880..... 280
Swine Breeders' Association, annual meeting, 1880..... 432
Table of farm crops in 1880, compared with 1879..... 567
Tabulated statement of principal crops—by counties amount raised, etc 548
Tile-drained farm, statement of John McGinnis..... 226
Tile Makers' Association, second annual meeting..... 391
Transactions of the State Board of Agriculture..... 1
Treasurer's report..... 234
Value of principal crops in Illinois, 1880..... 572
Value of live stock marketed, 1880..... 581
Value of farm products, etc., 1880..... 588
Winter meeting, 1881..... 184
Wool Growers' Association, annual meeting, 1880..... 428



SHORTHORN BULL, "MASTER RICHMOND 33,229"—Exhibited by J. H. POTTS & SON, Jacksonville, Ill. Awarded Sweepstakes Premium, State Fair 1880.

TRANSACTIONS

OF THE

STATE BOARD OF AGRICULTURE,

SINCE CLOSE OF WINTER MEETING OF 1878.

MEETINGS DURING THE FAIR.

LELAND HOTEL,
SPRINGFIELD, ILLINOIS.

SATURDAY, September 25, 1880, 9 o'clock A. M.

Board met in special session, as per call of the President.

President Scott in the chair.

Present: Vice Presidents Ellsworth, Emory, Haskell, Moore, Dysart, Douglas, Smith, Voorhies, Pullen, Stookey, ex-President Gillham and President Scott.

Motion of Mr. Gillham carried,

That entries may be made in the speed rings not filled up to 6 o'clock P. M. the day previous to the races as advertised in the programme.

Motion of Mr. Ellsworth carried,

That a ring be made for three-year-old running horses, with same premium as for two-year olds, and that the race be advertised as a mile dash, for Tuesday, at 3 o'clock, P. M.

Motion of Mr. Gillham carried,

That the half-mile track be used for all tests of speed.

Motion of Mr. Smith carried,

That complimentary tickets admit the persons named and carriage.

On motion of Mr. Douglas,

The Board adjourned to meet on call of the President.

LELAND HOTEL,
SPRINGFIELD, ILLINOIS.

SATURDAY, September 25, 1880, 8 o'clock P. M.

Board met in special session, as per call of the President.

In absence of President Scott, Vice President Ellsworth was called to the chair.

Present: Vice Presidents Ellsworth, Haskell, Moore, Dysart, Douglas, Epler, Smith, Voorhies, Pullen, Landrigan and ex-President Gillham.

Motion of Mr. Gillham carried,

That a purse of $200 be offered for three-year-old trotters, mile heats, best two in three, with not less than three to enter and two to start; first horse to have $100, second $80, and third to save entrance. The race to take place at 3 o'clock P. M., Tuesday, 28th September, 1880.

Motion of Mr. Smith carried,

That the action of the Board requiring all races to be made on the mile track be reconsidered.

Motion of Mr. Landrigan carried,

That the purse for the three-year-old running race be increased to $200, and divided the same as for the three-year-old trotting race.

On motion of Mr. Moore,

Board adjourned to meet on call of the President.

LELAND HOTEL,
SPRINGFIELD, ILLINOIS.

MONDAY, September 27th, 1880, 8 o'clock P. M.

Board met in special session, as per call of the President.

President Scott in the chair.

Present: Vice Presidents Ellsworth, Emery, Haskell, Moore, Dysart, Snoad, Cobb, Vittum, Douglas, Beaty, Epler, Smith, Voorhies, Pullen, Stookey, Washburn, Landrigan and President Scott.

Motion of Mr. Douglas carried,

That the regular exhibition close at 4 P. M. on Friday evening, as heretofore, and that Saturday be devoted exclusively to speed tests.

Mr. Stookey introduced the following resolution, which was adopted on motion of Mr. Smith:

Resolved, That each member of the Board be authorized to provide delegates from their respective districts, in attendance at the Convention, meal tickets on the day of the Convention.

Motion of Mr. Landrigan carried,

That the President and General Superintendent be and are hereby instructed to see that the statute is enforced in regard to the sale of spirituous liquors within two miles of the Fair Grounds.

Minutes read, and, on motion of Mr. Cobb, adopted.

On motion of Mr. Ellsworth,

The Board adjourned to meet on call of the President.

LELAND HOTEL,
SPRINGFIELD, ILLINOIS.

FRIDAY, October 2, 1880, 8 o'clock P. M.

Board met in special session, as per call of the President.

President Scott in the chair.

Present: Vice Presidents Ellsworth, Emery, Haskell, Moore, Dysart, Snoad, Beaty, Smith, Bishop, Stookey, Landrigan, ex-President Gillham and President Scott.

Mr. Gillham, Superintendent Class M, Speed, presented the following protest:

PROTEST.

Illinois State Board of Agriculture:

I hereby enter a protest against the eligibility of horses "Pimeoleon" and "Lulu Mack," entered in three minute race, for reasons that the horses have public records better than three minutes, which is true to the best of my knowledge and belief; and further protest, that the horses were entered after the entries closed on September 18, 1880, and published to the public on September 22, 1880, in Springfield Journal that the race was filled.

[Signed.]

S. C. WAGENER, [SEAL.]

STATE OF ILLINOIS,
COUNTY OF SANGAMON.

Subscribed and sworn to before me this October 1, 1880.

JOHN D. KEEDY, [SEAL]
Justice of the Peace.

Motion of Mr. Landrigan carried,

That the entries be declared eligible, the applications therefor having been mailed on the 18th day of September.

Motion of Mr. Landrigan carried,

That the protestor be allowed three weeks to furnish satisfactory evidence as to the statements contained in the protest, and that the President and Secretary be authorized to consider and pass upon the evidence presented.

Mr. Smith reported that he had been sued by J. C. Conkling, of Springfield, supposed to be for something connected with the steam power contracted for by the Citizens' Committee to run the machinery on exhibition at the State Fair held in 1879.

Motion of Mr. Gillham carried,

That Mr. Smith be directed to defend the suit in the name of the Illinois State Board of Agriculture.

Motion of Mr. Gillham carried,

That the President appoint a committee of five to serve with himself in completing all necessary arrangements for the forthcoming Fat Stock Show.

The President appointed as said committee Messrs. Dysart, Moore, Vittum, Voorhies and Landrigan.

Motion of Mr. Gillham carried,

That each member of the Board select an expert judge to pass upon the stock exhibited at the next Fat Stock Show, the names to be forwarded to the Secretary on or before the 15th of October, 1880.

Secretary Fisher called attention to the proposed meeting of State Agricultural Boards for the purpose of perfecting a plan of Inter-State Crop and Stock Reports, and stated that Springfield had been named as a convenient point for the meeting.

Motion of Mr. Douglas carried,

That the Illinois State Board of Agriculture cordially and earnestly invite representatives of State Boards of Agriculture from other States to meet in the rooms of the department, and that the Board will coöperate in the proposed work.

Mr. Gillham called attention to the action of the Speed Committee in providing for additional tests of speed.

Motion of Mr. Dysart carried,

That the action of the Committee on Speed, in making new races, be approved.

The following communication of Joseph Watts was read, and,

On motion of Mr. Haskell,

Action thereon was deferred until the Winter meeting:

SPRINGFIELD, ILLINOIS,
30th September, 1880.

Illinois State Board of Agriculture:

Having made an entry of Southdown Sheep by mail with the Secretary of said Board, I shipped my sheep in due time, but by unavoidable delay they did not arrive here until about four o'clock Wednesday afternoon. According to the Premium List, Southdowns were advertised to show Thursday, but they were judged Wednesday, thereby depriving me of an opportunity of competing. The expense of getting my sheep here has been $26.65, which amount I desire to recover of your honorable Board.

Respectfully,

JOSEPH WATTS,
Ottawa, Ill.

On motion of Mr. Ellsworth,

The Board adjourned subject to the call of the President.

CONVENTION OF DELEGATES.

ELECTION ILLINOIS STATE BOARD OF AGRICULTURE.

FAIR GROUNDS,
SPRINGFIELD, ILLINOIS.

WEDNESDAY, September 29, 1881—2 o'clock P. M.

The convention of delegates for election of members of the State Board of Agriculture met at the Secretary's office.

President Scott called the convention to order, and, after stating the objects of the meeting, nominated Hon. J. H. Pickrell, of Macon county, as permanent chairman, who was, on motion, unanimously elected.

On motion of Mr. Dunlap, of Champaign county,

S. D. Fisher, of Springfield, was made Secretary of the convention.

On motion of H. L. Bush, of DuPage county,

Charles F. Mills, of Springfield, was made Assistant Secretary of the convention.

D. B. Gillham, of Madison county, moved the appointment, by the Chair, of a committee of three, on credentials.

J. M. Washburn, of Williamson county, moved to amend by appointing one delegate from each Congressional district as Committee on Credentials.

Amendment adopted, and motion, as amended, adopted.

The Chairman appointed, as Committee on Credentials, the following:

First District—H. M. Singer, Cook county.
Second District—W. J. Ellinwood, Cook county.
Third District—H. C. Senna, Cook county.
Fourth District—C. H. Larkin, Kane county.
Fifth District—C. H. Rosensteil, Stephenson county.
Sixth District—Simon Elliott, Bureau county.
Seventh District—G. D. Henning, Kendall county.
Eighth District—E. F. Earl, Ford county.
Ninth District—J. B. Hatch, Fulton county.
Tenth District—James T. Johnson, Hancock county.

Eleventh District—D. K. Watson, Brown county.
Twelfth District—F. M. Morton, Morgan county.
Thirteenth District—D. M. Funk, McLean county.
Fourteenth District—Wm. Voorhies, Piatt county.
Fifteenth District—G. W. Vaughan, Moultrie county.
Sixteenth District—J. N. Kern, Clinton county.
Seventeenth District—D. B. Gillham, Madison county.
Eighteenth District—John O'Hara, Jackson county.
Nineteenth District—W. F. Beck, Richland county.

The Committee on Credentials retired, and, after examination of credentials, made the following report:

Hon. J. H. Pickrell, Chairman of the Convention:

The Committee on Credentials was organized by the election of D. B. Gillham, chairman, and Charles F. Mills as clerk. The examination of credentials developed the fact that no contest existed except in the county of Macoupin, where one set of delegates had been appointed by the officers of the defunct county agricultural board, that had sold the fair grounds to a newly-organized Fair Association, and had ceased to hold fairs.

At the request of the new Fair Association, delegates were appointed by the county board of supervisors, and your committee recommend that the delegates appointed by the county board of supervisors be recognized as entitled to represent Macoupin county in this convention.

The credentials of the following named gentlemen are in form, and they are entitled to vote in this convention:

County.	Delegates.
Adams	P. S. Judy, Maurice Kelly, George W. Dean
Boone	A. E. Jenner, Clark Heath, John T. Foot
Brown	D. K. Watson, George W. Bordenkircher, George W. Means
Bureau	Simon Elliott, Joseph Morrison
Carroll	John A. Melendy, E. L. Byington, J. M. Adair
Cass	C. W. Savage, A. G. Epler, George A. Beard
Champaign	Albert Dunlap, E. E. Chester, H. M. Dunlap
Christian	Thomas Hunter, John B. Ricks, W. T. Baker
Clark	A. Huston
Clinton	W. H. Russell, John Burton, J. N. Kerr
Coles	S. D. Dole, J. F. Dora, T. T. Shoemaker
Cook	H. M. Singer, H. C. Senne, W. J. Ellinwood
Cumberland	Harlow Park, Warner Canfield, John Cline
DeKalb	Ed. Waite, J. M. Hummell
DeWitt	George Weedman, John Weedman, J. A. Wilson
Douglas	H. B. Madison, J. A. Lewis, Wm. Howe
DuPage	H. L. Bush, J. A. Patrick, G. J. Atchison
Edgar	Wm. Blackburn
Edwards	Geo. Ferriman
Effingham	T. T. Thompson
Ford	A. Croft, F. W. Beardsley, E. F. Earl
Fulton	J. M. Hatch
Greene	Geo. W. Davis, J. C. Burrows, C. I. McCollister
Grundy	W. D. Hitchcock, H. C. Claypool, W. A. Jordon
Hancock	Jas. T. Johnson
Henderson	John H. McDougall, John H. Rice, Saml. McElheny
Henry	Isaac Pyle, N. C. Gilbert, A. A. Crane
Iroquois	Hiram Venum, W. M. Conly, D. C. Brown
Jackson	Philip Kimmel, John O'Hara, John M. Gill
Jasper	T. J. Martin
Jefferson	John C. McConnell, Calvin M. Brown, J. R. Moss
Jersey	Robt. M. Bell, Morris R. Lock, C. P. Powell
Kane	T. Griffiths, C. H. Larken, S. N. Wright
Kankakee	H. D. Worcester, H. S. Bloom, H. C. Castle
Kendall	G. D. Henning, A. Welch, Nathan Loucks
Knox	J. C. Eiker
LaSalle	Wm. Reddick, O. O. Wakefield, Ransom Palmer
Lawrence	J. M. Buchanan, Samuel Gillespie
Lee	H. E. Badger, H. D. Dement, C. H. Ingals
Livingston	D. M. Lyon, H. O. Babcock, R. C. Straight
Logan	E. Harness, R. B. Latham, Lewis Rosenthrall
Macon	E. A. Jones, J. H. Pickrell, V. Barber
Macoupin	David Gore, J. P. Henderson, B. Dorsey
Madison	D. B. Gillham, J. A. Barnsback, John Weaver
Marion	Jas. Johnson
Marshall	C. Perry, Mark Gregory, J. L. Ball
Mason	J. Wheeler
McDonough	A. McLean, James Manley, A. V. Bowsking

List of Delegates—Continued.

COUNTY.	DELEGATES.
McHenry	L. W. Sheldon, T. McD. Richards, James Crow
McLean	D. M. Funk, J. T. Didlake, Isaiah Dillon
Menard	David Grant, Geo. B. Welsh, Matt. Hundsforth
Mercer	R. J. Cobeen, W. K. Fulton, G. D. Miller
Morgan	A. B. Green, F. M Morton, John R Megginson
Moultrie	G. W. Vaughan, J. Eden, J. T. Howell
Ogle	J. L. Moore, Wm. Stocking, Simon Sheaff
Peoria	Nelson Burnham, Roswell Bills, Chas. P. King
Piatt	Wm. Voorhies, Jesse W. Warner, D. H. Gardner
Pike	Monroe Yates, E. S. Parker, B. B. Hopkins
Pulaski	W. R. Crane, H. F. Palter
Putnam	Joel W. Hopkins
Randolph	J. C. Perkins, Jno. C. Boyce, David Ohlwine
Richland	W. F. Beck
Rock Island	A. F. Hollister, M. D. Hanberg, Jeremiah Lequaratta
Sangamon	Geo. M. Caldwell, G. A. VanDuyn, Samuel Hitt
Schuyler	M. W. Green, J. C. Snepps, L. D. Erwin
Scott	M. W. Riggs, Thos. Hurd, Jno. M. Berry
Shelby	Henry Spraker
Stark	Andrew Oliver, J. H. Quinn, J. H. Ogle
St. Clair	Calvin Wilderman, W. C. Buchanan, Isaac N. Shook
Stephenson	J. S. Taggart, J. H. Perce, C. H. Rosensteil
Tazewell	Saml. Schureman, C. M. Kingman, H. R. Jones
Union	Thos. T. Bouton, Harvey C. Bouton, Louis Schuckers
Vermilion	J. H. Oakwood, L. T. Dickason, James Cunningham
Wabash	Jacob Seiler, Jeremiah Fox, M. D. McClintock
Warren	J. B. Mills
Wayne	Adam Rinard, N. E. Roberts, J. T. Fleming
White	Orlando Burrell, Fred'k Purcell, T. S. Barnes
Whiteside	A. Powers, J. F. Demmon, R. E. Logan
Will	W. E. Henry, Jas. L. Owen, W. T. Nelson
Williamson	W. H. Warder, J. M. Washburn, E. L. Denison
Winnebago	Geo. S. Haskell
Woodford	Edwin Hodgson, E. S. Fursman, John Tyler

Respectfully submitted.

CHARLES F. MILLS,
Clerk.

D. B. GILLHAM,
Chairman.

On motion of Wm. Reddick, of LaSalle,

The report of the Committee on Credentials was received and adopted.

Motion of D. B. Gillham, of Madison county, carried,

That where all the delegates are not present, those in attendance be allowed to cast the full vote of the county.

Motion of John Landrigan, of Edwards county, carried,

That numbered slips of paper, representing the several Congressional Districts in the State, be placed in a hat, and that Vice Presidents be elected in the order their districts are drawn by the Chairman.

Motion of G. M. Caldwell, of Sangamon county, carried,

That two tellers be appointed by the Chair.

The Chairman appointed as tellers, G. M. Caldwell, of Sangamon county, and George Weedman, of DeWitt county.

Motion of D. B. Gillham, of Madison county, carried,

That the convention proceed to the election of a President, and a Vice President from each Congressional District, to constitute the Illinois State Board of Agriculture, for the years 1881 and 1882, as provided by law.

The following were duly elected:

President—James R. Scott, Champaign.

Vice Presidents:
First District—Lewis Ellsworth, Naperville.
Second District—H. D. Emery, Chicago.
Third District—John P. Reynolds, Chicago.
Fourth District—Geo. S. Haskell, Rockford.
Fifth District—J. L. Moore, Polo.
Sixth District—Samuel Dysart, Franklin Grove.
Seventh District—Charles Snoad, Joliet.
Eighth District—Emory Cobb, Kankakee.
Ninth District—D. W. Vittum, Canton.
Tenth District—E. B. David, Aledo.
Eleventh District—D. E. Beaty, Jerseyville.
Twelfth District—J. W. Judy, Tallula.
Thirteenth District—W. M. Smith, Lexington.
Fourteenth District—Wm. Voorhies, Voorhies.
Fifteenth District—E. H. Bishop, Effingham.
Sixteenth District—B. Pullen, Centralia.
Seventeenth District—David Gore, Carlinville.
Eighteenth District—J. M. Washburn, Carterville.
Nineteenth District—John Landrigan, Albion.

Motion of Mr. Gillham, of Madison county, carried,

That the thanks of the convention be tendered the officers, for services rendered.

On motion, the convention adjourned, *sine die.*

J. H. PICKRELL, *President.*

S. D. FISHER, *Secretary.*

SHORTHORN COW "PRICILLA 8TH"—Exhibited by J. H. POTTS & SON, Jacksonville, Ill. Awarded Sweepstakes Premium, State Fair 1880. (page 8.)

LIST OF AWARDS

AT THE

ILLINOIS STATE FAIR FOR 1880.

SPRINGFIELD, SEPTEMBER 27, TO OCTOBER 2.

CLASS A—CATTLE.

SAMUEL DYSART, *Superintendent.*

LOT 1—SHORT HORNS—THOROUGHBRED.

BULLS.

Bull, 3 years old or over—2 entries:
First premium, J. H. Potts & Son, Jacksonville $25 00
Frederick William, 23195; red; calved Nov. 30, 1875: bred by Edward Iles, Springfield; sire, Imp. Duke of Richmond, 21525; dam, Sanspariel 25th, by Imp. Sheriff (29964).
Second premium, Stevenson & Sons, Little Indian 15 00
Rural Duke, 24747; red; calved April 19, 1875; bred by James L. Patterson, Harrison Co., Ky.; sire, 2d Duke of Oneida, 9926; dam, Luda 5th, by Duke of Mason, 5589.

Bull, 2 years old and under 3—2 entries:
First premium, J. H. Potts & Son, Jacksonville 25 00
Master Richmond, 33239; red; calved March 4, 1878; bred by J. H. Potts & Son, Jacksonville; sire, Imp. Duke of Richmond, 21525; dam, Phyllis of Oakland, by Master Geneva, 20368.
Second premium, Stevenson & Sons, Little Indian 15 00
London Duke 30th, 33134; red; calved Oct. 25, 1877; bred by Grigsby & Cowan, Cowan's Mill, Va.; sire, 2d Earl of Oxford, 6708; dam, London Duchess 8th, by 5th Duke of Geneva, 7932.

Bull, 1 year old and under 2—1 entry:
First premium, J. H. Potts & Son, Jacksonville 20 00
Royal Commander, 36878; red; calved January 22, 1879; sire, Frederick William, 23195; dam, Priscilla, by 3d Lord of Racine, 21649.

Bull, under 1 year old—1 entry:
First premium, J. H. Potts & Son, Jacksonville 15 00
Proud Duke, 36660; red; calved Nov. 9, 1879; bred by J. H. Potts & Son, Jacksonville; sire, Imp. Duke of Richmond, 21525; dam, Fannie Airdrie, by Summit Airdrie, 12997.

COWS AND HEIFERS.

Cow, 4 years old or over—4 entries:
First premium, J. H. Potts & Son, Jacksonville 25 00
Priscilla 8th; red; calved April 21, 1876; bred by Birrell & Johnston, Canada; sire, 3d Lord of Racine, 21649; dam, Imp. Priscilla 7th, by Lord St. Leonards (29202).
Second premium, J. H. Potts & Son, Jacksonville 15 00
Mattie Richardson; red; calved March 20, 1872; bred by J. H. Kissinger, Clarksville, Mo.; sire, Duke of Airdrie, 9800; dam, Rose of Elkhill, by J. E. B. Stewart, 6900.

Cow, 3 years old and under 4—3 entries:
First premium, Stevenson & Sons, Little Indian $25 00
Mattie Bell 2d; calved June 30, 1877; bred by A. M. Anderson, Kentucky; sire, Lord Alexander, 27046; dam, Mattie Bell.
Second premium, J. H. Potts & Son, Jacksonville 15 00
Gem of Oakland; red and white; calved March 9, 1877; bred by J. H. Potts & Son, Jacksonville; sire, Imp. Duke of Richmond, 21525; dam, Fanchon, by Master Geneva, 20368.

Cow, 2 years old and under 3—5 entries:
First premium, J. H. Potts & Son, Jacksonville 25 00
Emma 5th; red; calved September 12, 1878; bred by J. H. Potts & Son, Jacksonville; sire Frederick William (23195); dam, Imp. Emma 3d, by Young Englishman (31113).
Second premium, J. H. Potts & Son, Jacksonville 15 00
Emma 4th; twin of Emma 5th.

Heifer, 1 year old and under 2—4 entries:
First premium, J. H. Potts & Son, Jacksonville 20 00
Duchess of Oakland; red; calved October 5, 1878; bred by J. H. Potts & Son, Jacksonville; sire, Imp. Duke of Richmond (21525); dam, Duchess of Clark 5th, by 2d Duke of Airdrie, 12091.
Second premium, J. H. Potts & Son, Jacksonville 10 00
Cassa of Oakland 2d; red; calved October 28, 1878; bred by J. H. Potts & Son, Jacksonville; sire, Frederick William, 23195; dam, Cassa 20th, by Monarch, 14941.

Heifer, under 1 year old—3 entries:
First premium, J. H. Potts & Son, Jacksonville 15 00
True Love of Oakland; red; calved October 14, 1879; bred by J. H. Potts & Son, Jacksonville; sire, Imported Duke of Richmond (21525); dam, Imp. True Love 11th, by Lord Broughton (31626).
Second premium, J. H. Potts & Son, Jacksonville 10 00
Mattie Richmond; red; calved December 6, 1879; bred by J. H. Potts & Son, Jacksonville; sire, Imp. Duke of Richmond, 21525; dam, Mattie Richardson, by Duke of Airdrie, 9800.

Awarding Committee—N. P. Cooper, New Lenox; A. Jeffery, Troy Grove; T. C. Ponting, Stonington; D. G. Ryburn, McLean.

LOT 2—SHORT HORNS—THOROUGHBRED—HERDS.

Bull and 5 cows or heifers, one year old or over, owned by one individual or previously existing firm—2 entries:
Premium, J. H. Potts & Son, Jacksonville $50 00
Frederick William, Mattie Richardson, Josie 3d, Priscilla 8th, Lady Athelstane, Maria Woods 8th.

BREEDERS' RING.

Five cattle, male or female, over 1 year old, bred and owned by the exhibiter—1 entry:
Premium, J. H. Potts & Son, Jacksonville 50 00
Master Richmond, Maria Woods 8th, Emma 4th, Emma 5th; Duchess of Oakland.

Awarding Committee—B. F. Funk, Bloomington; J. W. Hopkins, Granville; A. A. Crane, Osco; W. Stocking, Rochelle; S. Sheaff, Holcomb.

LOT 3—SHORT HORNS—THOROUGHBRED—SWEEPSTAKES.

Bull of any age—4 entries:
Premium, J. H. Potts & Son, Jacksonville $50 00
Master Richmond, 33239.

Cow or heifer of any age—7 entries:
Premium, J. H. Potts & Son, Jacksonville 50 00
Priscilla 8th.

Awarding Committee—Jas. Cotton, Newman; A. Jeffery, Troy Grove; Abner Strawn, Ottawa; Wm. King, Naperville; A. J. Streeter, New Windsor.

LOT 4—HEREFORDS—THOROUGHBRED.

BULLS.

Bull 3 years old or over—2 entries:
First premium, C. M. Culbertson, Chicago $25 00
Anxiety, 2238 (5188); calved October 1, 1876; bred by T. J. Carwardine, Stocktonbury, Leominster, Eng.; sire, Longhorns, 2209 (4,711); dam, Helena, by DeCote (3060).
Second premium, Thos. Clark Beecher 15 00
Sir Richard 3d, 714; calved May 10, 1877; bred by J. Merryman, Cockeysville, Md.; sire, Sir Richard 2d (4984); dam, Agnes.

Bull 2 years old and under 3—1 entry:
First premium, C. M. Culbertson, Chicago..... $25 00
Sr. Garnet, 2489; calved July 28, 1878; sire, The Grove 3d (5061); dam, Lady, by Speculation, (4149).

Bull 1 year old and under 2—3 entries:
First premium, C. M. Culbertson, Chicago..... 20 00
Tipp-canoe, 2476; calved April 14, 1879; sire, Trédegar 2d (5663); dam, Sprangle 3d, 2335.
Second premium, T. C. Ponting, Stonington..... 10 00
Bonnie Lad; calved October 8, 1878; bred by F. W. Stone, Guelph, Ontario, Can.; sire, Imp. Governor 4th (4620); dam, Bonnie Lass 6th, by Sir Charles (3434).

Bull under 1 year old—2 entries:
First premium, C. M. Culbertson, Chicago..... 15 00
Dandy Jim; calved November 9, 1879; sire, Freeport, 987; dam, Almira, 1113.
Second premium, Thos. Clark, Beecher..... 10 00
Billy, 2224; calved November 29, 1879; bred by Thos. Clark, Beecher; Sire, Richard 3d, 714; dam, Lillie May.

COWS AND HEIFERS.

Cow 4 years old or over—7 entries:
First premium, Thos. Clark, Beecher..... 25 00
Sun Flower, 1425; calved March 15, 1874; bred by Thos. Clark, Beecher; sire, Sir Arthur (4112); dam, Baroness 3d.
Second premium, Thos. Clark, Beecher..... 15 00
Nellie 2d, 1424; calved May 5, 1874; bred by Thos. Clark, Beecher; sire, Sir Arthur (4112); dam, Nellie.

Cow 3 years old and under 4—1 entry:
First premium, Thos. Clark, Beecher..... 25 00
Lilly 1423; calved February 20, 1877; bred by Thos. Clark, Beecher; Sire, Sir Arthur (4112); dam, Princess Louise, by Bristol Bill (4374).

Heifer 2 years old and under 3—7 entries:
First premium, C. M. Culbertson, Chicago..... 25 00
Beauty 3d, 1367; calved May 12, 1878; bred by T. L. Miller, Beecher; sire, Sir Richard 2d (4984); dam, Mystic Maid, 1361.
Second premium, Thos. Clark, Beecher..... 15 00
Jessie, Impt., 2668; calved July 30, 1878; bred by T. Lewis, Woodhouse, Eng.; sire, Young Sir Frank (4274); dam, Tidy.

Heifer 1 year old and under 2—6 entries:
First premium, C. M. Culbertson, Chicago..... 20 00
Rose of Will; calved February 2, 1878; sire, Fair Boy, by Sir Richard, 4984; dam, Mystic Maid, 1361.
Second premium, C. M. Culbertson, Chicago..... 10 00
Lady Whiteface, 1506 calved November 28, 1878; sire, Success (5031); dam, Almira, 1113

Heifer, under 1 year old—4 entries:
First premium, C. M. Culbertson, Chicago..... 15 00
Sprightly; calved November 14, 1879; sire, Freeport, 987; dam, Miss Shaw.
Second premium, Thos. Clark, Beecher..... 10 00
Matchless, 2226; calved December 15, 1879; bred by Thos. Clark, Beecher; sire, Sir Richard 3d, 714; dam, Nellie 2.

Awarding Committee—J. H. Pickrell, Harristown; D. G. Ryburn, Randolph; B. F. Montgomery, Petersburg; H. D. Burruss, Carrollton; Wm. Brown, Berlin.

LOT 5—HEREFORDS—THOROUGHBRED—HERDS.

Bull and 5 cows or heifers, 1 year old or over, owned by one individual, or previously existing firm—2 entries:
Premium, C. M. Culbertson, Chicago..... $50 00
Anxiety, 2238 (5188); Daffodil, 2595; Apple Blossom, 2562; Perfection 2d, 2749; Mattie, 1520; Beauty 3d, 1367.

BREEDERS' RING.

Five cattle, male or female, over 1 year old, bred and owned by the exhibiter—1 entry:
Premium, Thos. Clark, Beecher..... 50 00
Sun Flower, 1425; Nellie 2d, 1424; Maggie, 1426; Lilly May, 1427; Crimson, 1428.

Awarding Committee—B. F. Funk, Bloomington; J. W. Hopkins, Granville; A. A. Crane, Osco; Wm. Stocking, Rochelle; S. Sheaff, Holcomb.

LOT 6—HEREFORDS—THOROUGHBRED—SWEEPSTAKES.

Bull of any age—3 entries:
Premium, C. M. Culbertson, Chicago..... $50 00
Anxiety, 2238 (5188).

Cow of any age—4 entries:
Premium, C. M. Culbertson, Chicago..... 50 00
Beauty 3d, 1367.

Awarding Committee—A. Jeffery, Troy Grove; Abner Strawn, Ottawa; Jas. Cotton Newman; Wm. King, Naperville; A. J. Streeter, New Windsor.

LOT 7—DEVONS—THOROUGHBRED.

BULLS.

Bull, 3 years old or over—3 entries:
First premium, D. J. Whitmore, Casstown, O..... $25 00
Barefoot, 732; calved April 22, 1873; bred by J. Buckingham, Devendale Stock Farm, Zanesville, O.; sire, Barena, 425; dam, Helena 28th, 1012, by Omar Pasha, 1001.
Second premium, Luther Rawson, Oak Creek, Wis..... 15 00
Sir John, 1065; calved May, 1871; bred by Luther Rawson, Oak Creek, Wis.; sire, President, 639; dam, Carrie Price, 850.

Bull, 1 year old and under 2—2 entries:
First premium, Luther Rawson, Oak Creek, Wis..... 20 00
Tom; calved February 28, 1879; bred by Luther Rawson, Oak Creek, Wis.; sire, Sir John, 1065; dam, Estelline, 935.
Second premium, D. J. Whitmore, Casstown, O..... 10 00
Elgin 2d; calved April 24, 1879; bred by D. J. Whitmore, Casstown, O.; sire, Coles Puritan 2d, 798; dam, Dora, 1566, by Prince Lapeer, 315.

Bull, under 1 year old—5 entries:
Frst premium, D. J. Whitmore, Casstown, O..... 15 00
LeRoy, 1271; calved January 24, 1880; bred by D. J. Whitmore, Casstown, O.; sire, Barefoot, 732; dam, Kitty Clover, 1070, by Bounty, 15.
Second premium, N. B. Choate, Waterloo, Iowa..... 10 00
Major; calved March 4, 1880; bred by N. B. Choate, Waterloo, Iowa; sire, Duke 3d; dam, Pink, 562.

COWS AND HEIFERS.

Cow, 4 years old and over—7 entries:
Firs' premium, D. J. Whitmore, Casstown, O..... 25 00
Kitty Clover, 1070; calved June 10, 1871; bred by J. J. Scarf, New Carlisle, O.; sire, Bounty, 15; dam, Pink, 1197.
Second premium, D. J. Whitmore, Casstown, O..... 15 00
Rosa, 2029; calved April 22, 1872; bred by D. J. Whitmore, Casstown, O.; sire, Grant 2d, 534; dam, Nina, 1172.

Cow, 3 years old and under 4—2 entries:
First premium, N. B. Choate, Waterloo, Iowa..... 25 00
Melody 3d; sire, Billy, 436; dam, Melody, 466 C. D. S. R.
Second premium, D. J. Whitmore, Casstown, O..... 15 00
Winnie; calved April 23, 1877; bred by D. J. Whitmore, Casstown, O.; sire, Butler, 434; dam, Kitty Clover, 1070.

Heifer, 2 years old and under 3—4 entries:
First premium, Luther Rawson, Oak Creek, Wis..... 25 00
Estelline 2d; calved March 25, 1878; bred by Luther Rawson, Oak Creek, Wis.; sire, Sir John, 1065; dam, Estelline, 935.
Second premium, D. J. Whitmore, Casstown, O..... 15 00
Effie; calved 1878; bred by D. J. Whitmore, Casstown, O.; sire, Butler 434; dam, Kitty Clover, 1070.

Heifer, 1 year old and under 2—4 entries:
First premium, D. J. Whitmore, Casstown, O..... 20 00
Gertrude; calved 1879; bred by D. J. Whitmore, Casstown, O.; sire, Barefoot, 732; dam, Rose 3d, 2039.
Second premium, D. J. Whitmore, Casstown, O..... 10 00
Lillith; calved 1879; bred by D. J. Whitmore, Casstown, O.; sire, Barefoot, 732; dam, Kitty Clover, 1070.

Heifer, under 1 year old—5 entries:
First premium, D. J. Whitmore, Casstown, O..... 15 00
Zoe; bred by D. J. Whitmore, Casstown, O.; sire, Elgin, 531; dam, Princess of Kent, 1999.
Second premium, Luther Rawson, Oak Creek, Wis..... 10 00
Mink; calved November 25, 1879; bred by Luther Rawson, Oak Creek, Wis.; sire, Sir John, 1065; dam, Lady Huron, 1812.

Awarding Committee—W. A. Pratt, Elgin; J. M. Buchanan, Lawrenceville; T. M. Taylor, Decatur.

LOT 8—DEVONS—THOROUGHBRED—HERDS.

Bull and 5 cows or heifers, 1 year old or over, owned by one individual or previously existing firm—3 entries:
Premium, D. J. Whitmore, Casstown, O..... $50 00
Barefoot, 732; Kitty Clover, 1070; Rosa, 2029; Princess of Kent, 1999; Winnie, Effie.

BREEDERS' RING.

Five cattle, male or female, over 1 year old, bred and owned by the exhibiter—3 entries:
Premium, N. B. Choate, Waterloo, Iowa..... 50 00
Melody 3d, Clara 3d, Princess 4th, Princess 7th, Duke 3d.

Awarding Committee—John W. Hunter, Owaneco; M. W. Riggs, Riggston; A. R. Yoakum Bement; B. F. Funk, Bloomington; Wm. Stocking, Rochelle; A. A. Crane, Osco.

LOT 9—DEVONS—THOROUGHBRED—SWEEPSTAKES.

Bull of any age—4 entries.
Premium, D. J. Whitmore, Casstown, O..... $50 00
Barefoot, 732.

Cow or heifer of any age—5 entries:
Premium, D. J. Whitmore, Casstown, O..... 50 00
Kitty Clover, 1070.

Awarding Committee—J. L. Connelly, Harristown; J. W. Skeavington, Albion; W. C. Norton, Aldenville, Pa.; T. M. Taylor, Decatur; H. H. Sharp, Sharpsburg.

LOT 10—POLLED ANGUS—THOROUGHBRED.

BULLS.

Bull, 3 years old or over—1 entry:
First premium, Anderson & Findlay, Lake Forest..... $25 00
Nicolis, 1633; calved April 7, 1877; bred by Jas. Walker, Westside Kildrumy, Aberdeen, Scotland; sire, Carlos, 673; dam, Bess of Bogfern, 1225.

Bull, 1 year old and under 2—1 entry:
First premium, Anderson & Findlay, Lake Forest..... 20 00
Powhatan; calved Sept. 28, 1879; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Diana 4th, 4228.

Bull, under 1 year old—2 entries:
First premium, Anderson & Findlay, Lake Forest..... 15 00
Pontiac; calved August 1, 1880; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Diana 4th, 4228.
Second premium, Anderson & Findlay, Lake Forest..... 10 00
Black Hawk; calved Sept. 6, 1880; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Waterside Fancy, 4229.

COWS AND HEIFERS.

Cow, 4 years old or over—5 entries:
First premium, Anderson & Findlay, Lake Forest..... 25 00
Diana 4th, 4228; calved March 13, 1877; bred by Col. Ferguson, Pitfour, Old Deer, Scotland; sire, Logie the Laird 3d, 862; dam, Diana, 1185.
Second premium, Anderson & Findlay, Lake Forest..... 15 00
Lazy 3d, 4298; calved Jan. 20, 1877; bred by Jas. Walker, Westside, Kildrumy, Aberdeen, Scotland; sire, Logie the Laird 4th, 892, dam, Lazy 2d.

Heifer, 1 year old and under 2—2 entries:
First premium, Anderson & Findlay, Lake Forest..... 20 00
Pocahontas; calved Feb. 21, 1879; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Lazy 3d, 4298.
Second premium, Anderson & Findlay, Lake Forest..... 10 00
Bright Eyes; calved July 4, 1879; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Waterside Fancy, 4229.

Heifer, under 1 year old—2 entries:
First premium, Anderson & Findlay, Lake Forest..... 15 00
Ahumatee; calved May 26, 1880; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Lazy 3d, 4298.
Second premium, Anderson & Findlay, Lake Forest..... 10 00
Wetamoo; calved Sept. 18, 1880; bred by Anderson & Findlay, Lake Forest; sire, Nicolis, 1633; dam, Violet of Bruce Hill, 3747.

Awarding Committee—J. H. Pickrell, Harristown; J. N. Gatton, Springfield.

LOT 11—POLLED ANGUS—THOROUGHBRED—HERDS.

Bull and 5 cows or heifers, 1 year old or over, owned by one individual, or previously existing firm—1 entry:
Premium, Anderson & Findlay, Lake Forest..... $50 00
Nicolis, 1633; Jeannie Gordon, 3746; Violet of Bruce Hill, 3747; Diana 4th, 4228; Waterside Fancy, 4229.

Awarding Committee—B. F. Funk, Bloomington; Wm. Stocking, Rochelle; David Grant, Petersburg.

LOT 12—POLLED ANGUS—THOROUGHBRED—SWEEPSTAKES.

Bull of any age—1 entry:
Premium, Anderson & Findlay, Lake Forest..... $50 00
Nicolis, 1633.

Cow or heifer of any age—1 entry:
Premium, Anderson & Findlay, Lake Forest..... 50 00
Diana 4th, 4228.

Awarding Committee—J. L. Connelly, Harristown; T. M. Taylor, Decatur; H. H. Sharp, Sharpsburg; J. W. Skeavington, Albion; W. C. Norton, Aldenville, Pa.

LOT 13—HOLSTEINS—THOROUGHBRED.

BULLS.

Bull 3 years old or over—3 entries:
First premium, Geo. E. Brown & Co., Aurora..... $25 00
Monitor, 299; black and white; calved May, 1876; bred by John Wortel, Beemster, North Holland; Imp. by Geo. E. Brown.
Second premium, Geo. E. Brown & Co., Aurora..... 15 00
Pilgrim, 317; white and black; calved March 3, 1877; bred by Wm. A. Russell; sire, Dictator (82); dam Cathrina (105).

Bull, 1 year old and under 2—2 entries:
First premium, W. L. Gardner, Norwalk, O..... 20 00
Konig; bred by T. Key, West Friesland, Holland; Imp. 1879.

COWS AND HEIFERS.

Cow, 4 years old or over—9 entries:
First premium, W. L. Gardner, Norwalk, O..... 25 00
Lady Texal; bred in North Holland; Imp. by T. E. Whiting.
Second premium, Geo. E. Brown & Co., Aurora..... 15 00
Madam Spaanz, 373; black and white; calved 1869; Imp. from North Holland in 1876, by Geo. E. Brown, Aurora.

Cow, 3 years old and under 4—4 entries:
First premium, Geo. E. Brown & Co., Aurora..... 25 00
Lady Mary, 1001; calved 1877; Imp. by Geo. E. Brown & Co., Aurora.
Second Premium, Geo. E. Brown & Co., Aurora..... 15 00
Lonvain, 786; calved 1877; Imp. by Geo. E. Brown & Co., Aurora.

Heifer, 2 years old and under 3—4 entries:
First premium, Geo. E. Brown & Co., Aurora..... 25 00
Valeda, 779; calved 1878; Imp. by Geo. E. Brown & Co., Aurora.
Second premium, Geo. E. Brown & Co., Aurora..... 15 00
Janet, 768; calved 1878; Imp. by Geo. E. Brown & Co., Aurora.

Heifer, 1 year old and under 2—5 entries:
First premium, W. L. Gardner, Norwalk, O..... 20 00
Zindma; bred by VanDyke, West Friesland, Holland; Imp. 1879.

Awarding Committee—G. J. Nybroe, Athens; A. Jeffery, Troy Grove; J. P. Fisher, Goodrich, Canada.

LOT. 14—HOLSTEINS—THOROUGHBRED—HERDS.

Bull and five cows or heifers, 1 year old or over, owned by one individual or previously existing firm—4 entries:
Premium, Geo. E. Brown & Co., Aurora..... $50 00
Monitor, 299; Madam Spaanz, 273; Meika, 395; Lady Mary, 1001; Louvain, 786; Valeda, 779.

Awarding Committee—B. F. Funk, Bloomington; Wm. Stocking, Rochelle; A. A. Crane, Osco.

LOT 15—HOLSTEINS—THOROUGHBRED—SWEEPSTAKES.

Bull, of any age - 4 entries:
Premium. Geo. E. Brown & Co., Aurora $50 00
Monitor, 299; Imp.
Cow or heifer, any age—9 entries:
Premium, Geo. E. Brown & Co., Aurora 50 00
Madam Spaanz, 373—Imported.

Awarding Committee—J. L. Connelly, Harristown; T. M. Taylor, Decatur; H. H. Sharp, Sharpsburg; J. W. Skeavington, Albion; W. C. Norton, Aldenville, Pa.

LOT 16—JERSEYS—THOROUGHBRED.

BULLS.

Bull, 3 years old or over—3 entries:
First premium, Samuel Stratton, Litchfield $25 00
Royalist, 2906; calved 1875; bred by P. J. Mourant; St. Saviors, Isle of Jersey; sire, Duke; dam, Regina.
Second premium, W. L. Gardner, Norwalk, Ohio 15 00
Tom McGreery, 1692; A. J. C. C. R.; sire, Son of Rose, 663, by Maxe; Imp.; dam, Princess, 1154; Imported.

Bull, 2 years old and under 3—2 entries:
First premium, Warren Heberling, Bath 25 00
Rodney 2d, 3658, A. J. C. C. R.; calved February 19, 1878; bred by T. C. Murphy, Green Valley; sire, Rodney, 1941; dam, Princess of Glencoe, 3815.
Second premium, Samuel Stratton, Litchfield 15 00
Lenape Chief, 3d; calved June 4, 1878; bred by Samuel Stratton, Litchfield; sire, Lenape Chief, 1052; dam, Menanda, 6460.

Bull, 1 year old and under 2—3 entries:
First premium, J. W. Vance, Cantrall 20 00
Royalist, 6th, 4977; calved May 20, 1879; bred by Samuel Stratton, Litchfield; sire, Royalist, 2906; dam, Menanda, 6460.
Second premium, W. L. Gardner, Norwalk, Ohio 10 00
Mercury of Maple Grove; sire, Mohawk, 2299; dam, Joey 2d, 2919.

Bull, under 1 year old—5 entries:
First premium, Samuel Stratton, Litchfield 15 00
Sir Lenape; calved March 29, 1880; bred by Samuel Stratton, Litchfield; sire, Lenape Chief 2d; dam, Usella 3d.
Second premium, Samuel Stratton, Litchfield 10 00
Royalist 10th; calved May 1, 1880; bred by Samuel Stratton, Litchfield; sire, Royalist, 2906; dam, Usella, 6459.

COWS AND HEIFERS.

Cow, 4 years old or over—6 entries:
First premium, Samuel Stratton, Litchfield 25 00
Elmina (6464); calved 1875; bred by N. Arthur, St. Mary's, Isle of Jersey; sire, Jersey Boy; dam, Jessie 2d.
Second premium, Samuel Stratton, Litchfield 15 00
Devonia (6462); calved 1875; bred by W. Alexander, St. Peters, Isle of Jersey; sire, Grey Prince; dam, Mignonne.

Cow, 3 years old and under 4—1 entry:
First premium, W. L. Gardner, Norwalk, Ohio 25 00
Lady Beaconsfield; bred by F. L. Brocq; Isle of Jersey; Imported November, 1879; sire, Rival, 143, Island Herd Book; dam, Violet, 997, Island Herd Book.
Heifer, 2 years old and under 3—5 entries:
First premium, Samuel Stratton, Litchfield 25 00
Labronte (6542); calved November 19, 1877; imported in dam; bred by A. Alexander, Isle of Jersey; sire, Northern Chief; dam, Nelly, 5456.
Second premium, W. L. Gardner, Norwalk, O 15 00
Blue Belle of Maple Grove; bred by Wm. Alexander, Isle of Jersey; imported 1879: sire, Governor, 138, Island Herd Book; dam, Rosetta.

Heifer, 1 year old and under 2—6 entries:
First premium, W. L. Gardner, Norwalk, O 20 00
Cliff Kirby, 9852; sire, Orawapum, 2833; dam, Emma Gansow.
Second premium, J. W. Vance, Cantrall 10 00
Sallie Vance 8th; calved May 31, 1879; bred by J. W. Vance, Cantrall; sire, Lord Baltimore, 2505; dam, Io 5th, 280.

Heifer, under 1 year old—4 entries:
First premium, Samuel Stratton, Litchfield 15 00
Golden Era 3d; calved April 6, 1880; sire, Lenape Chief, 1052; dam, Golden Era, 6457.
Second premium, W. L. Gardner, Norwalk, O 10 00
——; sire, Tom McGreery, 1692; dam, Buckeye Girl, 6280.

Awarding Committee—J. R. Miles, Miles Station; J. H. Pickrell, Harristown; T. Hunter, Owaneco; Edw. L. Oldman, Pana; G. J. Nybroe, Athens.

LOT 17—JERSEYS—THOROUGHBREDS—HERDS.

Bull and 5 cows, or heifers 1 year old or over, owned by one individual or previously existing firm—2 entries:
Premium, W. L. Gardner, Norwalk, O. $50 00
Tom McGreery 1692, Queen of the Farm, Blue Belle of Maple Grove, Lady Beaconsfield, De Brocq's Lily of the Valley, Daisy of Jersey.

Awarding Committee—J. H. Pickrell, Harristown; Wm. Stocking, Rochelle; H. E. Hobart.

LOT 18—JERSEYS—THOROUGHBREDS—SWEEPSTAKES.

Bull of any age—7 entries:
Premium, Samuel Stratton, Litchfield $50 00
Lenape Chief 3d.

Cow or heifer of any age—13 entries:
Premium, W. L. Gardner, Norwalk, O. 50 00
Blue Belle of Maple Grove.

Awarding Committee—W. C. Norton, Aldenville, Pa.; T. M. Taylor, Decatur; J. L. Connelly, Harristown; J. W. Skeavington, Albion; H. A. Sharp, Sharpsburg.

LOT 19—AYRSHIRES—THOROUGHBRED.

BULLS.

Bull, 3 years old or over—3 entries:
First premium, A. J. Wilson, Grafton, O. $25 00
Forester, 1766; light red and white; calved February 24, 1876; bred by James Laurie, Malvern, Ont.; sire, Seaforth 2d, 1709; dam, Daisy Maid, 3407.
Second premium, Wm. Fairweather, McLane, Pa. 15 00
Excelcius, 1758; light red and white; calved October 13, 1876; bred by A. J. Wilson, Grafton, O.; sire, Lorain, 681; dam, Annie, 3324, Imp.

Bull, 2 years old and under 3—2 entries:
First premium, John Stewart, Blackberry 25 00
Lincoln; calved March 19, 1878; bred by John Stewart, Blackberry; sire, Grant; dam, Lady Jane, 2666.
Second premium, Wm. Fairweather, McLane, Pa. 15 00
Laird O'Cockpen, 2135; calved July 25, 1878; bred by A. J. Wilson, Grafton, O.; sire, Lorain, 681; dam, Annie, 3324.

Bull, 1 year old and under 2—4 entries:
First premium, John Stewart, Blackberry 20 00
Charlie; calved December 27, 1879; bred by John Stewart, Blackberry; sire, Grant; dam, Daisy Maid.
Second premium, A. J. Wilson, Grafton, O. 10 00
Scotch Lad 3d, 2233; calved March 27, 1879; bred by J. Balnbridge, North Ridgeville, O.; sire, Scotch Lad, 1798; dam, Hazel Dell, 3523.

Bull, under 1 year old—3 entries:
First premium, A. J. Wilson, Grafton, O. 15 00
Royal Oak, 2345; calved May 29, 1880; bred by A. J. Wilson, Grafton, O.; sire, Ohio Hero, 1875; dam, Daisy Maid of Canada, 4682.
Second premium, A. J. Wilson, Grafton, O. 10 00
The Squire, 2346; calved March 2, 1880, bred by A. J. Wilson, Grafton, O.; sire, Lorain, 681; dam, Miss Leeper, 4082, Imp.

COWS AND HEIFERS.

Cow, 4 years old or over—10 entries:
First premium, A. J. Wilson, Grafton, O. 25 00
Annie, 3324, Imp.; bright red and white; calved August 10, 1874; bred by Wm. Cassels, Carluke, Scotland; sire, in Scotland; dam, Katie, 4251, Imp.
Second premium, John Stewart, Blackberry 15 00
Dairy Maid; calved April 3, 1875; bred by John Stewart, Blackberry; sire, George 3d, 1154; dam, Lady Ellen, 2652.

Cow, 3 years old and under 4—5 entries:
First premium, John Stewart, Blackberry 25 00
Snowball; calved April 3, 1877; bred by John Stewart, Blackberry; sire, Grant; dam, Maggie, 2793.
Second premium, Wm. Fairweather, McLane, Pa. 15 00
Mollie Pender, 4351; red and white; bred by J. F. Converse, Woodville, N. Y.; sire, Woodville Chief, 1542, Imp.; dam, Lady Pender, 2688, Imp.

Heifer, 2 years old and under 3—6 entries:
First premium, John Stewart, Blackberry 25 00
Spotty Grant; calved May 30, 1878; bred by John Stewart, Blackberry; sire, Grant; dam, Lady Jane, 2666.
Second premium, John Stewart, Blackberry 15 00
Isabel 3d; calved August 30, 1878; bred by John Stewart, Blackberry; sire, Grant; dam, Isabel, 2524.

Heifer, 1 year old and under 2—7 entries:
First premium, N. N. Jones, Normal $20 00
Naomi, 2047 N. A. A. R., vol. 4; calved July, 1879, bred by N. N. Jones, Normal; sire, Thor, 500; dam, Fanny Mains, 153.
Second premium, Wm. Fairweather, McLane, Pa 10 00
Edna B., 5047; calved November 22, 1878; bred by J. F. Mason, Leon, O.; sire, Duke of Hamilton 2d, 61 N. A. A. R.; dam, Dandy 2d, 4385.

Heifer, under 1 year old—3 entries:
First premium, N. N. Jones, Normal 15 00
Headlight; calved 1880; bred by N. N. Jones, Normal; sire, Thor, 500; dam, Fanchon, 711.
Second premium, A. J. Wilson, Grafton, O 10 00
Scotch Rose, 5031; calved April 4, 1880; bred by A. J. Wilson, Grafton, O.; sire, Lorain, 681; dam, Rosie 2d, 3767.

Awarding Committee—J. R. Miles, Miles Station; James Shinn, Springfield; W. P. Franklin, McLean.

LOT 20—AYRSHIRES—THOROUGHBRED—HERDS.

Bull and 5 cows or heifers, 1 year old or over, owned by one individual or previously existing firm—3 entries:
Premium, John Stewart, Blackberry $50 00
Lincoln, Dairy Maid, Snowball, Hattie Kane, Spotty, Isabel 3d.

BREEDERS' RING.

Five cattle, male or female, over 1 year old, bred and owned by the exhibiter—1 entry:
Premium, John Stewart, Blackberry 50 00
Lincoln, Dairy Maid, Snowball, Hattie Kane, Spotty, Isabel 3d.

Awarding Committee—Samuel McElhaney, Biggsville; J. F. Simpson, Carrollton; L. O. Gillham, Alton.

LOT 21—AYRSHIRES—THOROUGHBRED—SWEEPSTAKES.

Bull of any age—7 entries:
Premium, Wm. Fairweather, McLane, Pa $50 00
Excelsius, 1758.

Cow or heifer of any age—14 entries:
Premium, A. J. Wilson, Grafton, O 50 00
Nonesuch, 3018; calved August 28, 1869; bred by James Laurie, Malvern, Ont.; sire, Avondale Farmer, 422, Imp.; dam, Avondale, 3329, Imp.

Awarding Committee—T. M. Taylor, Decatur; H. H. Sharp, Sharpsburg; J. L. Connelly, Harristown; W. C. Norton, Aldenville, Pa.; J. W. Skeavington, Albion.

CLASS B—HORSES.

JOHN LANDRIGAN, *Superintendent.*

LOT 22—THOROUGHBRED.

STALLIONS.

Stallion, 4 years old or over—7 entries:
First premium, Wiley Buckles, Champaign $25 00
Harkaway; foaled in 1873; sire, Enquirer; dam, Rurica, by Ruric.
Second premium, A. B. Watts, Farmingdale 15 00
Voltigeur; foaled 1872; bred by Gen. Harding, Nashville, Tenn.; sire, Vandal; dam, Duett, by Highlander.

Stallion, 3 years old and under 4—1 entry:
First premium, Wiley Buckles, Champaign 20 00
Gen. Rowett; sire, Imp. Intruder; dam, Mammona, by Imp. Sovereign.

Stallion, 2 years old and under 3—2 entries:
First premium, John A. McClernand, Springfield 20 00
Lincoln; sire, Zenith; dam, Bronze, by Marion.
Second premium, A. Wadd e, Springfield 10 00
Barney Dale; sire, Barney Williams; dam, Imp. Knight of St. George.

Stallion, 1 year old and under 2—1 entry:
First premium, Thos. Young, Ridgely 15 00
Viron; foaled March 16, 1879; sire, Voltigeur; dam, Laura, by Red Horse, son of Pacific.

Stallion colt, under 1 year old—2 entries:
First premium, A. B. Watts, Farmingdale..... $15 00
Mose; foaled in 1880; bred by A. B. Watts, Farmingdale; sire, Voltigeur; dam, Kate Condell, by Marion.
Second premium, A. B. Watts, Farmingdale..... 10 00
Atwood; foaled 1880; bred by A. B. Watts, Farmingdale; sire, Voltigeur; dam, Ate, by Prolific.

MARES.

Mare, four years old or over—5 entries:
First premium, Wiley Buckles, Champaign..... 25 00
Lizzie Vick; foaled in 1868; bred by W. R. A. Lewis, Scott county, Ky.; sire, Uncle Vick; dam, Maggie, by Imp. Knight of St. George.
Second premium, D. Decamp, Edinburg..... 15 00
Nora D.: Sire, Mammon; dam, Crazy Jane, by Woodpecker.

Mare, 3 years old and under 4—1 entry:
First premium, Phil. Warren, Springfield..... 20 00
Eloise; foaled in 1877; bred by Phil. Warren, Springfield; sire, Barney Williams; dam, Lizzie Trigg.

Mare, 2 years old and under 3—6 entries:
First premium, Wiley Buckles, Champaign..... 20 00
Baybee; sire, Imp. Billet; dam, Lizzie Vick.
Second premium, Phil. Warren, Springfield..... 10 00
Del Warren; foaled in 1878; bred by Phil. Warren, Springfield; sire, Marion; dam, Lady Walker.

Mare, 1 year old and under 2—5 entries:
First premium, A. B. Watts, Farmingdale..... 15 00
Mary Warren; foaled in 1879; bred by A. B. Watts, Farmingdale; sire, Voltigeur; dam, Amanda Warren, by Marion.
Second premium, Wiley Buckles, Champaign..... 10 00
Rebecca Rowett; sire, Uncle Vick; dam, Mammona.

Mare colt, under 1 year old—2 entries:
First premium, Wiley Buckles, Champaign..... 15 00
Amozette; sire, Harkaway; dam, Lizzie Vick.
Second premium, Peter Vredenburg, Springfield..... 10 00
Lillie Dale; foaled March 28, 1880; sire, Voltigeur; dam, Maggie, by Imp. Knight of St. George.

BREEDING RING.

Brood mare, shown with two of her colts, under two years of age—1 entry:
Premium, A. B. Watts, Farmingdale..... 30 00
Ate; colts, Atrine; Atwood.

Stallion, showing best 5 sucking foals, of either sex—1 entry:
Premium, A. B. Watts, Farmingdale..... 50 00

Awarding Committee—J. H. Pickrell, Harristown; J. M. Stribbling, Virginia; James McKean, Bradford; Geo. B. Gray, Pontiac; D. DeCamp, Edinburg; W. H. Russell, Lost Creek.

LOT 23—THOROUGHBREDS—SWEEPSTAKES.

Stallion of any age—8 entries:
Premium, A. B. Watts, Farmingdale..... $50 00
Voltigeur.

Mare of any age—13 entries:
Premium, Wiley Buckles, Champaign..... 50 00
Lizzie Vick.

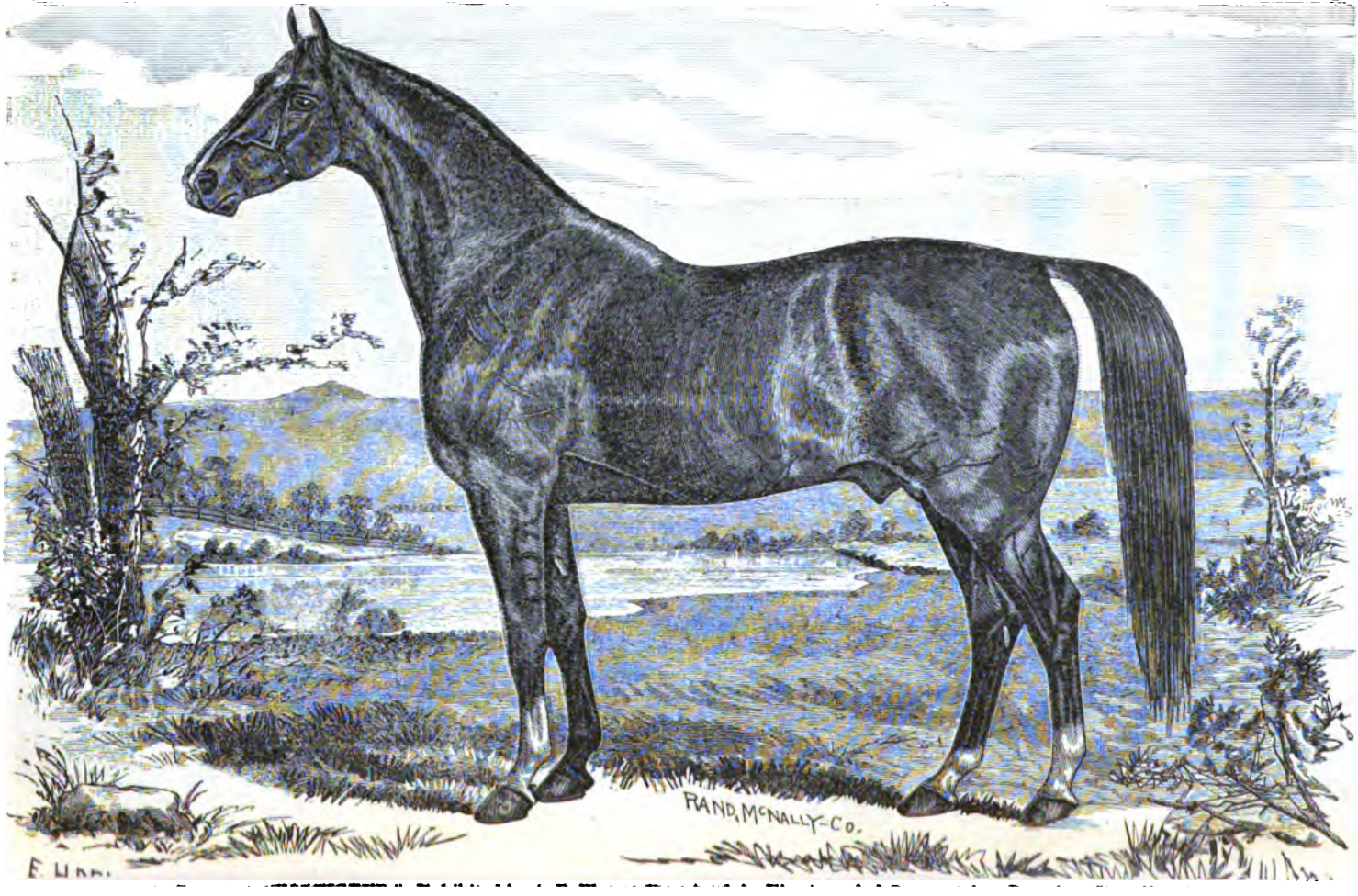
Awarding Committee—J. G. Byers, Simpsonville, Ky.; John C. Bruner, Buckley; D. N. Gross, Naperville.

LOT 24—ROADSTERS.

STALLIONS.

Stallion, 4 years old or over, to harness—14 entries:
First premium, Caton & Jerrems, Joliet..... $25 00
Second premium, P. H. Dorsey, Bunker Hill..... 15 00

Stallion, 3 years old and under 4, to harness—2 entries:
First premium, G. M. Chidester, Virden..... 20 00
Second premium, C. A. Jones, Williamsville..... 10 00


RAND, McNALLY & CO.

Stallion, 2 years old and under 3—10 entries:
First premium, Leonard & Beerup, Chatham $20 00
Second premium, A. L. Longworth, McLean 10 00

Stallion, 1 year old and under 2—6 entries:
First premium, Conover & Crum, Little Indian 15 00
Second premium, Peter Hanson, Athens 10 00

Stallion colt, under 1 year old—10 entries:
First premium, W. F. Fletcher, Waverly 15 00
Second premium, J. M. Harris, Waverly 10 00

MARES.

Mare, 4 years old or over, to harness—10 entries:
First premium, J. M Conklin, Jerseyville 25 00
Second premium, J. H. McKean, Bradford 15 00

Mare, 3 years old and under 4, to harness—6 entries;
First premium, P. H. Dorsey, Bunker Hill 20 00
Second premium, Caton & Jerrems, Joliet 10 00

Mare, 2 years old and under 3—6 entries:
First premium, Conover & Crum, Little Indian 20 00
Second premium, A. Armstrong, Beason 10 00

Mare, 1 year old and under 2—5 entries:
First premium, J. A. Short, Fayette 15 00
Second premium, J. G. Willard, Harristown 10 00

Mare colt, under 1 year old—8 entries:
First premium, A. W. Beaver, New Holland 15 00
Second premium, Geo. W. Means & Co., Hersman 10 00

BREEDING RING.

Brood mare, shown with two of her colts under 2 years of age—1 entry:
Premium, A. Armstrong, Beason 30 00

Stallion, showing best 5 sucking foals of either sex—2 entries:
Premium, P. H. Dorsey, Bunker Hill 50 00

Awarding Committee—Wm. E. Bennett, Springfield; Robert Hall, Virginia; W. F. Beck, Olney.

LOT 25—ROADSTERS—SWEEPSTAKES.

Stallion, of any age—17 entries:
Premium, P. H. Dorsey, Bunker Hill $100 00
Mare, of any age—18 entries:
Premium, J. M. Conklin, Jerseyville 50 00

Awarding Committee—Geo. B. Gray, Pontiac; N. H. Paaren, Chicago; J. C. McConnell, Mt. Vernon.

LOT 26—HORSES FOR ALL WORK.

STALLIONS.

Stallion, 4 years old or over—11 entries:
First premium, Geo. W. Means & Co., Hersman $25 00
Second premium, E. H. Wilson, Farmer City 15 00

Stallion, 3 years old and under 4—4 entries:
First premium, Conover & Crum, Little Indian 20 00
Second premium, Ed. Hodgson, El Paso 10 00

Stallion, 2 years old and under 3—6 entries:
First premium, J. A. Short, Fayette 20 00
Second premium, A. B. Clark, Petersburg 10 00

Stallion, 1 year old and under 2—6 entries:
First premium, J. H. McEldowney, Bloom 15 00
Second premium, W. C. Waters, Waverly 10 00

Stallion colt, under 1 year old—11 entries:
First premium, Geo. W. Means & Co., Hersman 15 00
Second premium, G. W. Bullock, Vancil's Point 10 00

MARES.

Mare, 4 years old or over—13 entries:
First premium, Conover & Crum, Little Indian $25 00
Second premium, Geo. W. Means & Co., Hersman 15 00

Mare, 3 years old and under 4—4 entries:
First premium, D. C. Snow, McLean 20 00
Second premium, W. M. Tipton, Odin 10 00

Mare, 2 years old and under 3—3 entries:
First premium, A. Armstrong, Beason 20 00
Second premium, Samuel Keys, Cotton Hill 10 00

Mare, 1 year old and under 2—5 entries:
First premium, Joseph Beach, Farmingdale 15 00
Second premium, W. T. Baker, Bolivia 10 00

Mare colt, under 1 year old—11 entries:
First premium, H. Wirt Butler, Springfield 15 00
Second premium, Geo. W. Means & Co., Hersman 10 00

BREEDING RING.

Brood mare, shown with 2 of her colts, under 2 years of age—4 entries:
Premium, A. Armstrong, Beason 30 00

Stallion, showing best 5 sucking foals, of either sex—3 entries:
Premium, Geo. W. Means & Co., Hersman 50 00

Awarding Committee—J. L. Owen, Mokena; A. R. Wallace, Camp Point; T. F. Bouton, Jonesboro; S. Johnson, Shelbyville; Reuben Lancaster, Virginia; T. A. Beerup, Springfield.

LOT 27—HORSES FOR ALL WORK—SWEEPSTAKES.

Stallion, of any age—27 entries:
Premium, D. A. Ott, Rochester $50 00

Mare, of any age—21 entries:
Premium, Conover & Crum, Little Indian 50 00

Awarding Committee—J. Gains, Indianola; W. A. Rankin, Rankin.

LOT 28—FRENCH DRAFT HORSES.

Percheron, Norman, and other French Draft Breeds—Imported or full blood.

STALLIONS.

Stallion, 4 years old or over—6 entries:
First premium, E. Dillon & Co., Bloomington $25 00
Nogeant, Imported 1877, by E. Dillon & Co.
Second premium, W. F. Garvey, Illiopolis 15 00
Dosoto, foaled April, 1876; sire, Roam, Imp.; dam, Magnolia, Imp.

Stallion, 3 years old and under 4—2 entries:
First premium, E. Dillon & Co., Bloomington 20 00
La Mans, Imported 1880, by E. Dillon & Co.

MARES.

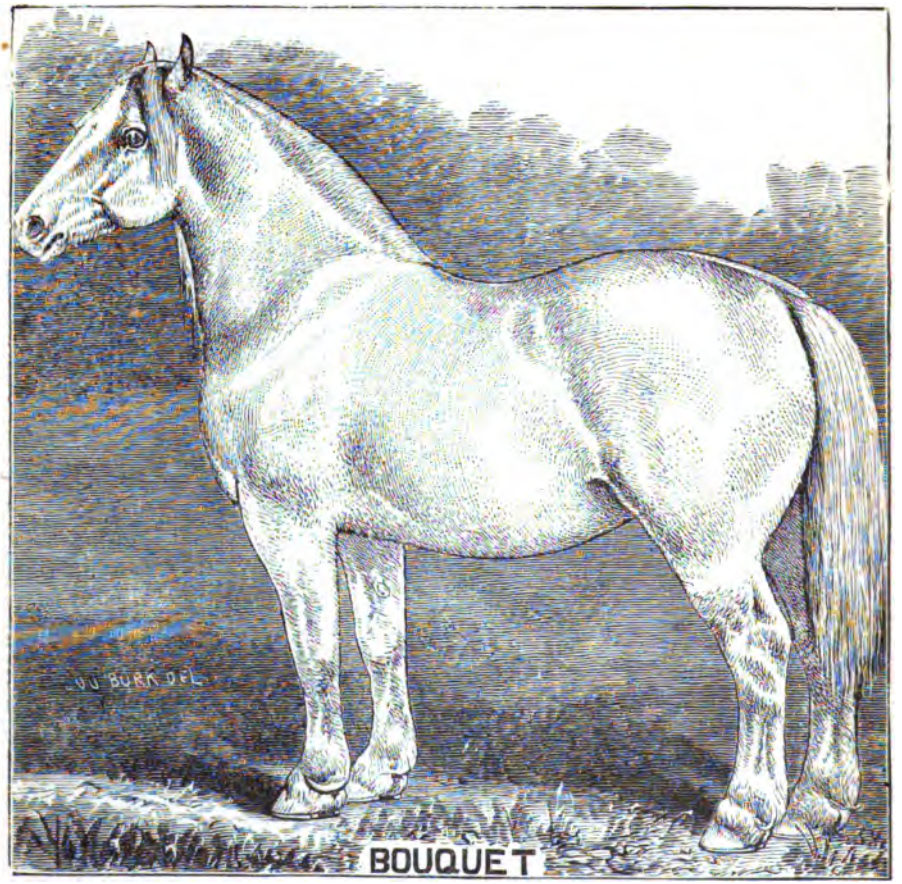
Mare, 4 years old or over—2 entries:
First premium, E. Dillon & Co., Bloomington 25 00
Bouquet, Imported 1875, by E. Dillon & Co.
Second premium, E. Dillon & Co., Bloomington 15 00
2d Rose of France, Imported 1875, by E. Dillon & Co.

Mare, 2 years old and under 3—1 entry:
First premium, E. Dillon & Co., Bloomington 20 00
Rosette; sired by St. Laurent, Imp.; dam, Rose of France.

BREEDING RING.

Stallion, showing best 5 sucking foals of either sex—1 entry.
Premium, W. F. Garvey, Illiopolis 50 00
Desoto.

Awarding Committee—T. F. Bouton, Jonesboro; A. R. Wallace, Camp Point; M. C. Welsh, Camp Point; J. C. M'Connell, Mt. Vernon.



NORMAN MARE "BOUQUET"—Exhibited by E. DILLON & Co., Bloomington, Ill. Awarded Sweepstakes Premium, State Fair 1880. (opp. p. 21.)

LOT 29—FRENCH DRAFT HORSES—SWEEPSTAKES.

Stallion of any age—7 entries:
Premium, W. F. Garvey, Illiopolis..... $50 00
Desoto.

Mare, of any age—3 entries:
Premium, E. Dillon & Co., Bloomington..... 50 00
Bouquet. Imp.

Awarding Committee—J. F. Dora, Charleston; J. C. McConnell, Dix; W. H. Russell, Lost Creek.

LOT 30.—ENGLISH DRAFT HORSES.

Clydesdale and other English Draft Breeds. Imported or Full Blood.

STALLIONS.

Stallion, 4 years old or over—5 entries:
First premium, A. Jeffery, Troy Grove..... $25 00
Jack's Alive; sire, Young England's Glory; imported by Mr. Fisher, Clinton, Can.; dam, by Jack's Alive; imp. by D. Ward, Weston, Can.; dam, by Old Clyde; imported by D. Ward, Weston, Can.
Second premium, D. McKay, Emerald Grove, Wis..... 15 00
Young Crown Prince; foaled 1873; bred by George Irving, Raffles; Imp. by D. McKay, 1880; sire, Crown Prince; dam, by Benicia Boy.

Stallion 3 years old and under 4—3 entries:
First premium, Ed. Hodgson, El Paso..... 20 00
Scottish Chief; sire, Joe the Banker; Imp. by T. R. Armstrong, Markham, Ont.; dam, Bell, by Sir Walter Scott.
Second premium, D. McKay, Emerald Grove, Wis..... 10 00
Lairdlaugh; bred by Mr. Nivison, Lairdlaugh, Dalbattie; sire, Sir Colin (1299); dam, Rosie, by Clyde (155).

Stallion, 2 years old and under 3—4 entries:
First premium, John Foulk, Mendota..... 20 00
President; bred by Jas. I. Davidson, Balsam, Ontaria; sire, Imp. Surprise (845); dam, Darling 2d, by Imp. Netherby.
Second premium, Wm. Moffatt & Bro., Paw-Paw..... 10 00
Highlandman; Imp. September, 1880; sire, Loren, (499); dam, by Sir Wm. Wallace, (803).

Stallion, 1 year old and under 2—2 entries:
First premium, Wm. Moffatt & Bro., Paw Paw..... 15 00
Lochleven 1st; foaled April 18, 1879; bred by Wm. Moffatt & Bro., Paw Paw; sire, Imp. Lochleven (11861); dam. Darling 5th, by Wonderful Lad.
Second premium, Wm. Moffatt & Bro., Paw Paw..... 10 00
Ned; foaled April 4, 1879; bred by Wm. Moffatt & Bro., Paw Paw; sire, Imp. Lochleven (1186); dam, Bonny, by Wonderful Lad.

MARES.

Mare, 4 years old or over—2 entries:
First premium, Wm. Moffatt Bros., Paw Paw..... 25 00
Darling 5th; foaled June 1, 1873; bred by Wm. Moffat & Bro., Paw Paw; sire, Wonderful Lad; dam, Darling 3d, by Imp. Netherby.
Second premium, Wm. Moffatt & Bro., Paw-Paw..... $15 00
Darling 8th; foaled April 1876; bred by Wm. Moffatt & Bro., Paw-Paw; sire, Imp. Scotland's Pride; dam, Darling 4th by Imp. Conqueror.

Mare, 3 years old and under 4—4 entries:
First premium, Wm. Moffatt & Bro., Paw-Paw..... 20 00
Topsy; foaled May, 1877; bred by Wm. Moffatt & Bro., Paw-Paw; sire, Imp. Scotland's Pride; dam, Black Pegy; by Young Walter Scott.
Second premium, Wm. Moffatt & Bro., Paw-Paw..... 10 00
Darling 10; foaled June, 1877; sire, Imp. Donald Dinnie, (1116); dam, Darling 6th, by Scotland's Pride.

Mare, 2 years old and under 3—3 entries:
First premium, D. M'Kay, Emerald Grove, Wis..... 20 00
Kate; Imp. September, 1880; sire, Young Champion, 935; dam, by Dunbarton, 253.
Second premium, D. M'Kay, Emerald Grove, Wis..... 10 00
Maid of Moss; foaled June 23, 1878; sire, Young Crown Prince; dam, by Rob Roy.

Mare, 1 year old and under 2—2 entries:
First premium, Wm. Moffatt & Bro., Paw-Paw..... $15 00
Darling 11th; foaled Jan., 1879; bred by Wm. Moffatt & Bro., Paw-Paw; sire, Imp. Lochleven (1186); dam, Darling 6th, by Scotland's Pride.
Second premium, Wm. Moffatt & Bro., Paw-Paw..... 10 00
Darling 12th; foaled May, 1879; bred by Wm. Moffatt & Bro., Paw-Paw; sire, Imp. Lochleven (1186); dam, Darling 3d, by Imp. Netherby.

Awarding Committee—Joe Whittaker, Sommerfield; John Mason, Newton; James R. Ryan, Lebanon.

LOT 31—ENGLISH DRAFT-HORSES—SWEEPSTAKES.

Stallion of any age—9 entries:
Premium, D. Grant & Co., Petersburg..... $50 00
Broomfield Champion; foaled June 25, 1876; bred by Robert Milne, Pickering, Ont.; sire, Young Broomfield; dam, by Conqueror.

Mare of any age—7 entries:
Premium, Wm. Moffatt & Bro., Paw-Paw..... 50 00
Darling 5th.

Awarding Committee—Geo. Pickrell, Wheatfield; John M. Poorman, Williamsville; T. Hunter, Owaneco.

LOT 32—DRAFT TEAM.

Team draft horses, pair of mares or pair of geldings, shown to farm wagon—5 entries;
First premium, Wm. Moffatt & Bro., Paw Paw..... $40 00
Second premium, E. Dillon & Co., Bloomington..... 20 00

Awarding Committee—Geo. Pickrell, Wheatfield; John M. Poorman, Williamsville; T. Hunter, Owaneco.

LOT 33—HORSES FOR AGRICULTURAL PURPOSES.

STALLIONS.

Stallion, 4 years old or over—13 entries:
First premium, J. P. Fisher, Goodrich, Ont..... $25 00
Second premium, Wm. Moffatt & Bro., Paw Paw..... 15 00

Stallion, 3 years old and under 4—3 entries:
First premium, Ed. Hodgson, El Paso..... 20 00
Second premium, D. Grant & Co., Petersburg..... 10 00

Stallion, 2 years old and under 3—3 entries:
First premium, W. P. Franklin, Lexington..... 20 00
Second premium, Joseph Meservy, Mt. Sterling..... 10 00

Stallion, 1 year old and under 2—3 entries:
First premium, Ed. Hodgson, El Paso..... 15 00
Second premium, A. M. Cline, Sherman..... 10 00

Stallion colt, under one year old—10 entries:
First premium, J. N. Cline, Cantrall..... 15 00
Second premium, Phil. Morgan, Taylorville..... 10 00

MARES.

Mare, 4 years old or over—11 entries:
First premium, Ed. Hodgson, El Paso..... 25 00
Second premium, J. N. Cline, Cantrall..... 15 00

Mare, 3 years old and under 4—4 entries:
First premium, James W. Ramsey, Jacksonville..... 20 00
Second premium, D. Grant & Co., Petersburg..... 10 00

Mare, 2 years old and under 3—3 entries:
First premium, J. N. Cline, Cantrall..... 20 00
Second premium, Ed. Hodgson, El Paso..... 10 00

Mare, 1 year old and under 2—4 entries:
First premium, Ed. Hodgson, El Paso..... 15 00
Second premium, Henry Dole, Heyworth..... 10 00

Mare colt, under 1 year old—7 entries:
First premium, Ed. Hodgson..... 15 00
Second premium.....

CLYDESDALE MARE "DARLING V"—Exhibited by WM. MOFFATT & BRO., Paw Paw, Ill. Awarded Sweepstakes Premium, State Fair 1880. (opp. p. 22.)

BREEDING RING.

Brood mare, shown with two of her colts under 2 years of age—3 entries:
Premium, Phil. Morgan, Taylorville $30 00

Stallion, showing best five sucking foals, of either sex—3 entries:
Premium, J. N. Cline, Cantrall 50 00

Awarding Committee—E. Saltzenstein, Springfield; J. H. Pickrell, Harristown; S. H. Jones, Springfield.

LOT 34—HORSES FOR AGRICULTURAL PURPOSES—SWEEPSTAKES.

Stallion of any age—24 entries:
Premium, J. P. Fisher, Goodrich, Ont $50 00

Mare of any age—17 entries:
Premium, Jas. W. Ramsey, Jacksonville 50 00

Awarding Committee—B. F. Funk, Bloomington; J. G. Byars, Simpsonville, Ky.; J. L. Owen, Mokena; John B. Ricks, Taylorville.

LOT 35—SADDLE HORSES.

STALLIONS.

Saddle stallion, 4 years old or over—4 entries:
First premium, W. H. Holly, Springfield $20 00
Second premium, Geo. W. Chatterton, Springfield 10 00

MARES.

Saddle mare, 4 years old or over—6 entries:
First premium, C. A. Jones, Williamsville 20 00
Second premium, Jacob McClellan, Williamsville 10 00

Saddle mare, under 4 years old—1 entry:
First premium, W. E. Perkins, Curran 20 00

GELDINGS.

Saddle gelding, 4 years old or over—6 entries:
First premium, G. A. Crum, Virginia 20 00
Second premium, W. E. Perkins, Curran 10 00

Saddle gelding, under 4 years old—2 entries:
First premium, Graves & Lancaster, Virginia 20 00
Second premium, John Sims, Virden 10 00

LOT 36—CARRIAGE HORSES.

Carriage team, shown to carriage or buggy—16 entries:
First premium, Wm. Stevenson & Son, Little Indian $40 00
Second premium, Saltzenstein & Rule, Athens 20 00

Family mare or gelding, driven to buggy—19 entries:
First premium, Wm. Stephenson & Son, Little Indian 20 00
Second premium, Graves & Lancaster, Virginia 10 00

Awarding Committee—J. I. Pearce, Chicago; F. W. Beardsley, Gibson City; J. C. McConnell, Dix.

LOT 37—GENTLEMEN'S DRIVING HORSES.

Pair of mares, to pole—7 entries:
First premium Caton & Jerrems, Joliet $40 00
Second premium, J. H. McKean, Bradford 20 00

Pair geldings, to pole—5 entries:
First premium, J. F. Mathers, Jacksonville 40 00
Second premium, E. Saltzenstein, Springfield 20 00

Single stallion, to harness—12 entries:
First premium, Caton & Jerrems, Joliet 40 00
Second premium, S. Johnson, Shelbyville, Ky 20 00

Single mare, to harness—14 entries:
First premium, Caton & Jerrems, Joliet 30 00
Second premium, J. M. Conklin, Jerseyville 15 00

Single gelding, to harness—12 entries:
First premium, S. O. Wagener, Pana $30 00
Second premium, J. M. Conklin, Jerseyville 15 00

Awarding Committee—Wm. Tipton, Oden; J. I. Pearce, Chicago; J. L. Owen, Mokena; J. B. Ricks, Taylorville; T. Hunter, Owaneco.

LOT 38—JACKS, JENNETS AND MULES.

JACKS.

Jack, 4 years old or over—2 entries:
First premium, F. M. Borders, Clinton $25 00

Jack, 2 years old and under 3—1 entry:
First premium, Wilson Leverton, Chatham 20 00

Jack, sucking colt—1 entry:
First premium, Geo. R. Jarrett, New Berlin 10 00

JENNETS.

Jennet, 3 years old or over—2 entries:
First premium, John Sims, Virden 20 00
Second premium, Geo. R. Jarrett, New Berlin 15 00

Jennet, 2 years old and under 3—1 entry:
First premium, W. T. Baker, Bolivia 15 00

Jennet, 1 year old and under 2—1 entry:
First premium, John Sims, Virden 10 00

Jennet, sucking colt—1 entry:
First premium, John Sims, Virden 10 00

MULES.

Mule, 3 years old or over—2 entries:
First premium, Wilson Leverton, Chatham 15 00

Two year old mule—3 entries:
First premium, Geo. B. Hickman, Lincoln 15 00
Second premium, Geo. R. Jarrett, New Berlin 10 00

One year old mule—2 entries:
First premium, Geo. B. Hickman, Lincoln 15 00
Second premium, Wilson Leverton, Chatham 10 00

Sucking colt—5 entries:
First premium, Geo. R. Jarrett, New Berlin 10 00
Second premium, F. M. Borders, Clinton 5 00

Awarding Committee—P. H. Dorsey, Bunker Hill; T. A. Beerup, Springfield; David Fisher, Canada.

LOT 39—JACKS, JENNETS AND MULES—SWEEPSTAKES.

Jack of any age, shown with not less than 3 mules of his get—2 entries:
Premium, F. M. Borders, Clinton $50 00

Jennet of any age, shown with 2 of her colts—1 entry:
Premium, John Sims, Virden 25 00

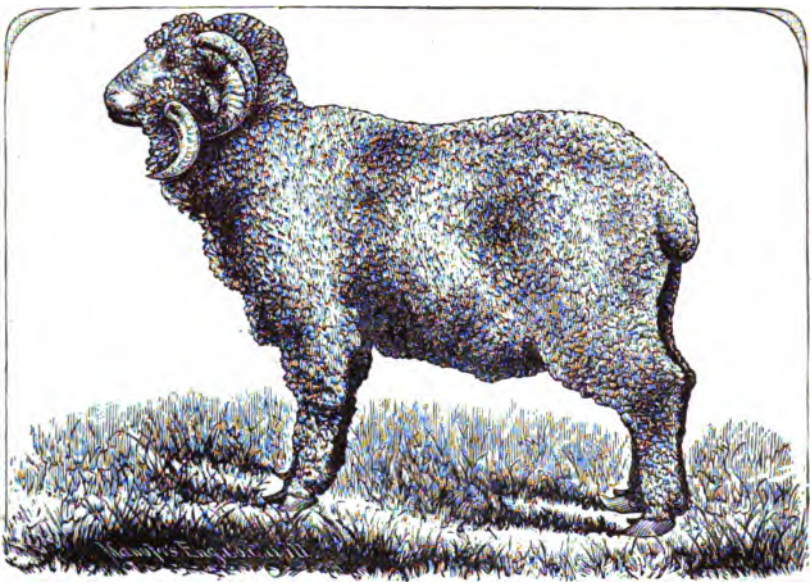
Team of mules, 3 years old or over, shown to farm wagon—3 entries:
First premium, P. H. Dorsey, Bunker Hill 25 00
Second premium, A. C. Finn, Foxville 15 00

Awarding Committee—David Fisher, Canada; T. A. Beerup, Springfield; Wm. E. Bennett, Springfield; W. F. Beck, Olney; W. H. Holly, Springfield.

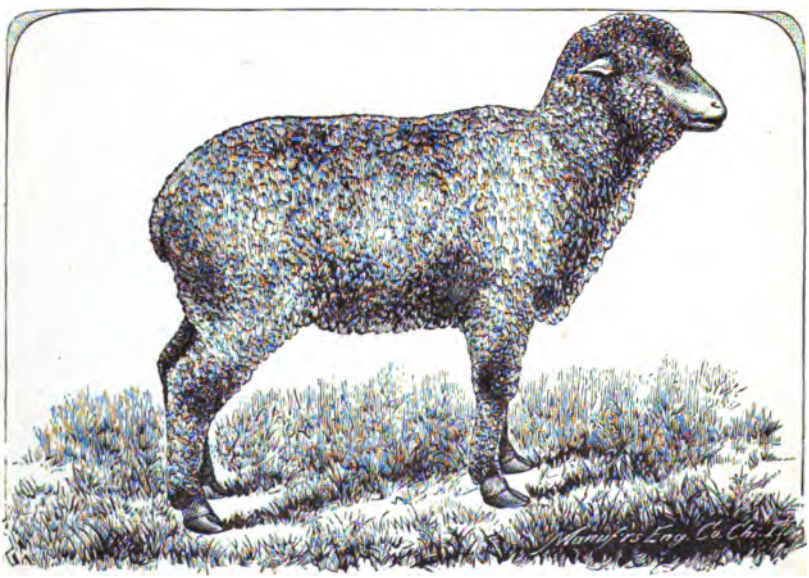
LOT 40—EQUESTRIANISM—BOYS' RIDING.

Boy not over 14 years old, displaying the best horsemanship in the saddle—10 entries:
First premium, E. A. Armstrong, Beason $10 00
Second premium, Jacob McClellan, Williamsville 5 00
Third premium, Thos. T. Bradford, Bradfordton 3 00
Fourth premium, J. N. Watts, Jr., Farmingdale 2 00
Fifth premium, Harry Gatton, Springfield 1 00

Awarding Committee—Geo. W. Funk, McLean; J. G. Byars, Simpsonville, Ky.; J. A. Hensly, Eminence, Ky.; M D. McClintock, Mt. Carmel.



French Merino RAM—Exhibited by M. C. Brownlee, Little York, Ill. Awarded Sweepstakes Premium, State Fair 1880.



French Merino EWE—Exhibited by M. C. Brownlee, Little York, Ill. Awarded Sweepstakes Premium, State Fair 1880. (opp. p. 25.)

CLASS C—SHEEP.

D. W. VITTUM, JR., *Superintendent.*

PURE BRED LONG-WOOLS.

LOT 41—COTSWOLDS.

RAMS.

Ram, 2 years old or over—4 entries:
First premium, Abner Strawn, Ottawa..... $20 00

Ram, 1 year old and under 2—8 entries:
First premium, Abner Strawn, Ottawa..... 15 00
Second premium, Morgan & Cotton, Newman..... 10 00
Captor; bred by J. Yoemens, Stretton Court, Herefordshire, Eng.; sire, Ram, bred by Lane of Broadfields, Gloucestershire, Eng.; dam, Ewe, bred by J. Yeomans.

Ram lamb, under 1 year old—7 entries:
First premium, Abner Strawn, Ottawa..... 10 00
Second premium, Abner Strawn, Ottawa..... 5 00

EWES.

Ewe, 2 years old or over—16 entries:
First premium, Abner Strawn, Ottawa..... 20 00
Second premium, Abner Strawn, Ottawa..... 10 00

Ewe, 1 year old and under 2—12 entries:
First premium, Morgan & Cotton, Newman..... 15 00
Lady; bred by Mr. Ward, Brampton Court, Herefordshire, Eng.; sire, Ram, bred by Fletcher, of Gloucestershire, Eng.; dam, Ewe, bred by Mr. Ward.
Second premium, Morgan & Cotton, Newman..... 10 00
Daisy; sire, Ram, bred by Fletcher, of Gloucestershire, Eng.; dam, Ewe, bred by Mr. Ward, Brampton Court, Herefordshire, Eng.

Ewe lamb, under 1 year old—12 entries:
First premium, Abner Strawn, Ottawa..... 10 00
Second premium, Morgan & Cotton, Newman..... 5 00
Jesse; bred by J. Yeomans, Stretton Court, Herefordshire, Eng.; sire, Ram, bred by Lane of Broadfields, Gloucestershire, Eng.; dam, ewe by J. Yeomans.

Awarding Committee—Thomas Kincaid, Athens; R. C. Allen, Harristown; O. B. Nichols, Carlisle.

LOT 42—COTSWOLD—SWEEPSTAKES.

Ram of any age—7 entries:
Premium, Abner Strawn, Ottawa..... $20 00

Ewe of any age—10 entries:
Premium, Morgan & Cotton, Newman..... 15 00
Lady.

Ram and 5 ews, over 2 years old—2 entries:
Premium, Abner Strawn, Ottawa..... 20 00

Ram, with 5 of his get, under 2 years old, owned and bred by the exhibiter—2 entries:
Premium, Abner Strawn, Ottawa..... 20 00

Awarding Committee—J. W. Hunter, Owaneco; Thos. Clark, Beecher; P. O'Brien, Lisle.

LOT 43—LEICESTER OR LINCOLN.

RAMS.

Ram, 2 years old or over—2 entries:
First premium, D. C. Graham, Cameron..... $20 00
Second premium, D. C. Graham, Cameron..... 10 00

Ram, 1 year old and under 2—2 entries:
First premium, D. C. Graham, Cameron..... 15 00
Second premium, D. C. Graham, Cameron..... 10 00

Ram lamb, under 1 year old—2 entries:
First premium, D. C. Graham, Cameron..... 10 00
Second premium, D. C. Graham, Cameron..... 5 00

EWES.

Ewe, 2 years old or over—2 entries:
First premium, D. C. Graham, Cameron..... $20 00
Second premium, D. C. Graham, Cameron..... 10 00

Ewe, 1 year old and under 2—2 entries:
First premium, D. C. Graham, Cameron..... 15 00
Second premium, D. C. Graham, Cameron..... 10 00

Ewe lamb, under 1 year old—2 entries:
First premium, D. C. Graham, Cameron..... 10 00
Second premium, D. C. Graham, Cameron..... 5 00

Awarding Committee—Elisha Primm, Athens; G. Lightfoot, Springfield; John Turnbull, Elmira.

LOT 44—LEICESTER OR LINCOLN—SWEEPSTAKES.

Ram, of any age—2 entries:
Premium, D. C. Graham, Cameron..... $20 00

Ewe, of any age—2 entries;
Premium, D. C. Graham, Cameron..... 15 00

Ram and 5 ews, over 2 years old—1 entry:
Premium, D. C. Graham, Cameron..... 20 00

Ram with 5 of his get, under 2 years old, of either sex, owned and bred by the exhibiter—1 entry:
Premium, D. C. Graham, Cameron..... 20 00

Awarding Committee—R. R. Stevenson, Little Indian; J. Morrison, Princeton; A. E. Lawton, Owaneco.

LOT 45—PURE BRED MIDDLE WOOLS—SOUTHDOWNS.

RAMS.

Ram, 2 years old or over—6 entries:
First premium, J. H. Potts & Son, Jacksonville..... $20 00
Second premium, Luke Teeple, Belvidere..... 10 00

Ram, 1 year old and under 2—6 entries:
First premium, J. H. Potts & Son, Jacksonville..... 15 00
Second premium, J. H. Potts & Son, Jacksonville..... 10 00

Ram lamb, under 1 year old—9 entries:
First premium, J. H. Potts & Son, Jacksonville..... 10 00
Second premium, A. Jeffery, Troy Grove..... 5 00

EWES.

Ewe, 2 years old or over—9 entries:
First premium, J. H. Potts & Son, Jacksonville..... 20 00
Second premium, Luke Teeple, Belvidere..... 10 00

Ewe, 1 year old and under 2—6 entries:
First premium, J. H. Potts & Son, Jacksonville..... 15 00
Second premium, J. H. Potts & Son, Jacksonville..... 10 00

Ewe Lamb, under 1 year old—5 entries:
First premium, J. H. Potts & Son, Jacksonville..... 10 00
Second premium, J. H. Potts & Son, Jacksonville..... 5 00

Awarding Committee—C. Perry, Evans; Robert Anderson, Polo; Andrew Oliver, Elmira.

LOT 46—SOUTHDOWN—SWEEPSTAKES.

Ram, of any age—9 entries:
Premium, J. H. Potts & Son, Jacksonville..... $20 00

Ewe, of any age—8 entries:
Premium, J. H. Potts & Son, Jacksonville..... 15 00

Ram and 5 ewes, over 2 years old—3 entries:
Premium, J. H. Potts & Son, Jacksonville..... 20 00

Ram, with 5 of his get, under 2 years old, of either sex, owned and bred by the exhibiter—2 entries:
Premium, J. H. Potts & Son, Jacksonville..... 20 00

Awarding Committee—Abner Strawn, Ottawa; Philip C. Watts, Ottawa; E. F. Iles, Springfield.

LOT 47—SHROPSHIRE DOWN, HAMPSHIRE DOWN, AND OTHER PURE BRED MIDDLE WOOLS.

RAMS.

Ram, 2 years old or over—2 entries:
First premium, Morgan & Cotton, Newman..... $20 00
Second premium, Morgan & Cotton, Newman..... 10 00

Ram, 1 year old and under 2—3 entries:
First premium, Morgan & Cotton, Newman..... 15 00
Second premium, Morgan & Cotton, Newman..... 10 00

Ram lamb, under 1 year old—3 entries:
First premium, A. Jeffery, Troy Grove..... 10 00
Second premium, Morgan & Cotton, Newman..... 5 00

EWES.

Ewe, 2 years old or over—2 entries:
First premium, Morgan & Cotton, Newman..... 20 00
Second premium, Morgan & Cotton, Newman..... 10 00

Ewe, 1 year old and under 2—2 entries:
First premium, Morgan & Cotton, Newman..... 15 00
Second premium, Morgan & Cotton, Newman..... 10 00

Ewe lamb, under 1 year old—2 entries:
First premium, Morgan & Cotton, Newman..... 10 00
Second premium, Morgan & Cotton, Newman..... 5 00

Awarding Committee—J. Morrison, Princeton; R. R. Stevenson, Little Indian; A. E. Lawton, Owaneco.

LOT 48—SHROPSHIRE DOWN, ETC.—SWEEPSTAKES.

Ram, of any age—4 entries:
Premium, Morgan & Cotton, Newman..... $20 00

Ewe, of any age—2 entries:
Premium, Morgan & Cotton, Newman..... 15 00

Ram and 5 ewes, over 2 years old—1 entry:
Premium, Morgan & Cotton, Newman..... 20 00

Ram with 5 of his get, under 2 years old, of either sex, owned and bred by the exhibiter—1 entry:
Premium, Morgan & Cotton, Newman..... 20 00

Awarding Committee—W. K. Fulton, Aledo; John Turnbull, Elmira; John F. Fulton, Petersburg.

LOT 49—PURE BRED FINE WOOLS—AMERICAN MERINO.

RAMS.

Ram, 2 years old or over—10 entries:
First premium, Samuel Jewett, Independence, Mo..... $20 00
Second premium, Taylor Bros., Waynesville..... 10 00

Ram, 1 year old and under 2—11 entries:
First premium, G. W. McFadden & Bro., Atlanta..... 15 00
Second premium, Samuel Jewett, Independence, Mo..... 10 00

Ram lamb, under 1 year old—15 entries:
First premium, G. W. McFadden & Bro., Atlanta..... 10 00
Second premium, Samuel Jewett, Independence, Mo..... 5 00

EWES.

Ewe, 2 years old or over—29 entries:
First premium, F. E. Day, Streator..... 20 00
Second premium, G. W. McFadden & Bro., Atlanta..... 10 00

Ewe, 1 year old and under 2—20 entries:
First premium, Samuel Jewett, Independence, Mo..... 15 00
Second premium, F. E. Day, Streator..... 10 00

Ewe lamb, under 1 year old—15 entries:
First premium, G. W. McFadden & Bro., Atlanta..... $10 00
Second premium, M. C. Brownlee, Little York..... 5 00

Awarding Committee—V. P. Richmond, Moro; H. P. Mount, Elkhart; N. E. Gilbert, Geneseo.

LOT 50—AMERICAN MERINO—SWEEPSTAKES.

Ram, of any age—15 entries:
Premium, F. E. Day, Streator..... $20 00

Ewe, of any age—36 entries:
Premium, F. E. Day, Streator..... 15 00

Ram and 5 ewes, over 2 years old—8 entries:
Premium, F. E. Day, Streator..... 20 00

Ram, with 5 of his get, under 2 years old, of either sex, owned and bred by the exhibiter—6 entries:
Premium, Samuel Jewett, Independence, Mo..... 20 00

Awarding Committee—W. W. Sloss, Norris; C. J. Alcott, Fairview; D. T. Hoppin, Pawnee.

LOT 51—FRENCH MERINO, SILESIAN MERINO, AND OTHER PURE BRED FINE WOOLS.

RAMS.

Ram, 2 years old or over—2 entries:
First premium, M. C. Brownlee, Little York..... $20 00
Second premium, M. C. Brownlee, Little York..... 10 00

Ram, 1 year old and under 2—2 entries:
First premium, M. C. Brownlee, Little York..... 15 00
Second premium, M. C. Brownlee, Little York..... 10 00

Ram lamb, under 1 year old—4 entries:
First premium, M. C. Brownlee, Little York..... 10 00
Second premium, C. W. Shipley, Chatham..... 5 00

EWES.

Ewe, 2 years old or over—3 entries:
First premium, M. C. Brownlee, Little York..... 20 00
Second premium, M. C. Brownlee, Little York..... 10 00

Ewe, 1 year old and under 2—1 entry:
First premium, M. C. Brownlee, Little York..... 15 00

Ewe lamb, under 1 year old—1 entry:
First premium, M. C. Brownlee, Little York..... 10 00

Awarding Committee—Joseph Caldwell, Bloom; A. E. Lawton, Owaneco; Jas. Haswell, Elmira.

LOT 52—FRENCH MERINO, ETC.—SWEEPSTAKES.

Ram, of any age—4 entries:
Premium, M. C. Brownlee, Little York..... $20 00

Ewe, of any age—3 entries:
Premium, M. C. Brownlee, Little York..... 15 00

Ram and 5 ewes, over 2 years old—1 entry:
Premium, M. C. Brownlee, Little York..... 20 00

Ram, with 5 of his get, under 2 years old, of either sex, owned and bred by the exhibiter—1 entry:
Premium, M. C. Brownlee, Little York..... 20 00

Awarding Committee—W. K. Fulton, Aledo; John Turnbull, Elmira; J. F. Fulton, Petersburg.

LOT 53—FLEECES.

LONG WOOL.

Twelve months' fleece from sheep over 2 years old—6 entries:
Premium, Abner Strawn, Ottawa.....Diploma

BERKSHIRE SOW "DIE VERNON 3D, 5468"—Exhibited by A. J. LOVEJOY, Jacksonville, Ill. Awarded Sweepstakes Premium, State Fair 1880. (opp. p. 29.)

FINE WOOL.

Twelve months' fleece from sheep over 2 years old—1 entry:
Premium, Taylor Bros., Waynesville.....Diploma

Fleece from sheep under 2 years old—2 entries:
Premium, Taylor Bros., Waynesville.....Diploma

Awarding Committee—C. H. Rosenstiel, Freeport; John T. Capps, Springfield; R. M. Bell, Brighton.

CLASS D—SWINE.

WM. VOORHIES, JR., *Superintendent.*

LOT 54—BERKSHIRES.

BOARS.

Boar, 2 years old or over—10 entries:
First premium, A. J. Lovejoy, Jacksonville..... $20 00
Bob Hood, 2078; farrowed April 4, 1878; bred by W. C. Norton, Aldenville, Pa.; sire, Robin Hood, 801; dam, Black Josephine, 1852.
Second premium, A. A. McArthur, Lobo, Ont..... 10 00
Earl of Balmoral 2d, 2563; farrowed October 12, 1877; bred by A. A. McArthur, Lobo, Ont.; sire, Norton's Smithereen, 2561; dam, Rachel, 5460.

Boar, 1 year old and under 2—6 entries:
First premium, W. D. Coffin, Bement..... 20 00
Ridge King, 2725; bred by W. C. Norton, Aldenville, Pa.; sire Kalakua 2d, 2083; dam, Dolly Smithereen 2d, 4506.
Second premium, Harris & Norton, Aldenville, Pa..... 10 00
Earl Hood, 4th; farrowed March, 1879; bred by W. C. Norton, Aldenville, Pa.; sire, Earl of Balmoral, 2d; dam, Sallie Hood, 2d.

Boar, under 1 year old—17 entries:
First premium, A. J. Lovejoy, Jacksonville..... 15 00
Smithereen's Valentine; farrowed February 14, 1880; bred by J. T. Mathers, Jacksonville; sire, Seventeen's Smithereen, 389; dam, Lady Greenbacks, 2970.
Second premium, A. & J. Dorsey, Perry..... 10 00
Garfield; sire, Disraeli 813; dam, Orianna, 3504.

SOWS.

Sow, 2 years old or over—13 entries:
First premium, Caleb Letton, Jacksonville..... 20 00
Lady Thompson; farrowed 1879; bred by E. M. Crisman, Merritt; Smithereen's Model of Perfection; dam, Gipsey 3d.
Second premium, A. & J. Dorsey, Perry..... 10 00
Gem of Seven Hampton 2d, 6138; sire, Disraeli, 813; Gem of Seven Hampton, 6136.

Sow, 1 year old and under 2—19 entries:
First premium, A. & J. Dorsey, Perry..... 20 00
Model Queen; sire, Cardiff Rule, 2321; dam, Perry's Beauty, 2062.
Second premium, A. & J. Dorsey, Perry..... 10 00
Ada Conner 2d; sire, British Conqueror 2319; dam, Ada Conner.

Sow, under 1 year old—25 entries:
First premium, Jas. W. Boston, Jacksonville..... 15 00
Lady Smithereen.
Second premium, A. J. Lovejoy, Jacksonville..... 10 00
Lady Hewer, 6356; farrowed October 15, 1879; bred by A. J. Lovejoy, Roscoe; sire, King of Trumps, 3031; dam, Nell Robin, 6272.

BREEDERS' RINGS.

Sow, with litter of her own pigs, not less than 5, under 6 months old—7 entries:
First premium, A. & J. Dorsey, Perry..... 20 00
Gem of Seven Hampton 2d, 6138; Pigs, sired by Cardiff Rule, 2321.
Second premium, A. J. Lovejoy, Jacksonville..... 10 00
Gipsey 6th.

Pen of breeding hogs—1 boar and 4 sows, over 1 year old, owned by the exhibiter—8 entries:
Premium, A. J. Lovejoy, Jacksonville..... 25 00
Bob Hood, 2079; Di Vernon 3d, 5486; Nell Robin, 6272; Gipsey 6th; Lady Greenbacks.

Five head of swine, of any age, the get of 1 boar, the sire to be shown with the pen and considered in making the award—3 entries:
Premium, A. A. McArthur, Lobo, Ont..... $20 00
Earl of Balmoral 2d, 2563, with 5 sows of his get.

Awarding Committee—M. E. Newbern, Hennepin; W. W. McClurg, Hennepin; B. F. Atkins, Monticello.

LOT 55—BERKSHIRE—SWEEPSTAKES.

Boar, of any age—20 entries:
Premium, Jas. W. Boston, Jacksonville..... $20 00
Streeter; farrowed April 7, 1880; bred by —— Ramsey, Jacksonville; sire, Disraeli, 813; dam, Orianna, 3504.

Sow, of any age—21 entries:
Premium, A. J. Lovejoy, Jacksonville..... 20 00
Di Vernon 3d, 5468; farrowed April 13, 1878; bred by W. C. Norton, Aldenville, Pa.; sire, Sambo 1st, 831; dam, Black Diamond, 1850.

Awarding Committee—Edwin Waite, Sycamore; J. L. Connelly, Harristown; H. Jones, Wilmington.

LOT 56—POLAND CHINA.

BOARS.

Boar, 2 years old or over—10 entries:
First premium, J. A. Lawrence, Connersville, Ind..... $20 00
Young Star of the West, 1235; sire, Star of the West; dam, Butcher Sow.
Second premium, B. F. Waters, Springfield..... 10 00
Pilot.

Boar, 1 year old and under 2—8 entries:
First premium, J. A. Lawrence, Connersville, Ind..... 20 00
Banner Boy; sire, Young Perfection, 631; dam, Spotted Perfection.
Second premium, H. B. Alverson, Cherry Valley..... 10 00
Mono; bred by L. Countryman, Rochelle; Moore & Sicon stock.

Boar, under 1 year old—21 entries:
First premium, J. A. Lawrence, Connersville, Ind..... 15 00
Napoleon Bonaparte; sire, Tom Corwin 2d; dam, Bess Stebbins, 1168.
Second premium, H. B. Alverson, Cherry Valley..... 10 00
Slick; bred by H. B. Alverson, Cherry Valley; sire, Mono; dam, Helen.

SOWS.

Sow, 2 years old or over—12 entries:
First premium, J. A. Lawrence, Connersville, Ind..... 20 00
Little Keever, 1848; sire, Fitz Keever, 213; dam, Black Jane, 128.
Second premium, A. & J. Dorsey, Perry..... 10 00
Maud S.; sire, Butler, (103); dam, Lily Greer 2d, (366).

Sow, 1 year old and under 2—11 entries:
First premium, B. R. Cole, Lovington..... 20 00
Fashion; sire, Black Prince; dam, Bismarck Sow.
Second premium, J. A. Lawrence, Connersville, Ind..... 10 00
Mollie, 2026; sire, Longfellow; dam, Jane Pugh, 1600.

Sow, under 1 year old—26 entries:
First premium, J. A. Lawrence, Connersville, Ind..... 15 00
Maudess; sire, Prince Albert, 631; dam, Style, 2384.
Second premium, B. F. Waters, Springfield..... 10 00
Molly.

BREEDERS' RINGS.

Sow, with litter of her own pigs, not less than 5, under 6 months old—7 entries:
First premium, J. A. Lawrence, Connersville, Ind..... 20 00
Lady Maud, 1766; sire, World Beater, 1213; dam, Bess Stebbins, 1168.
Second premium, H. B. Alverson, Cherry Valley..... 10 00
Dinah; pigs sired by Mono.

Pen of breeding hogs, 1 boar and 4 sows, over 1 year old, owned by the exhibiter—7 entries:
Premium, J. A. Lawrence, Connersville, Ind..... 25 00
Keever, Maud, Mollie, Viola, Star.

Five head of swine of any age, the get of one boar, the sire to be shown with the pen, and considered in making the award—7 entries:
Premium, J. A. Laurence, Connersville, Ind. $20 00
Star, Mollie, Keever, Maud, Cleopatra.

Awarding Committee—H. C. Barnes, Virden; J. S. Highmore, Rochester; E. H. Robb, Waynesville; Alonzo Stearns, Fairmount.

LOT 57—POLAND CHINA—SWEEPSTAKES.

Boar, of any age—20 entries:
Premium, A. & J. Dorsey, Perry $20 00
Butler 3d, (99); sire, Butler, 108; dam, Prairie Gem 2d, (398).

Sow, of any age—21 entries:
Premium J. A. Lawrence, Connersville, Ind. 20 00
Little Keever.

Awarding Committee—Wm. G. Stafford, Minier; Michael Judy, Armington; M. H. Beaver, Lincoln; B. F. Corwin, Broadwell—Committee on Boars. S. H. Busey, Urbana; J. E. Roach, Lincoln; A. Turner, Atlanta—Committee on Sows.

LOT 58—CHESTER WHITE.

BOARS.

Boar 2 years old or over—2 entries:
First premium, A. & J. Dorsey, Perry $20 00

Boar, 1 year old and under 2—5 entries:
First premium, M. E. Newbern, Hennepin 20 00
Second premium, A. & J. Dorsey, Perry 10 00

Boar, under 1 year old—5 entries:
First premium, M. E. Newbern, Hennepin 15 00
Second premium, A. & J. Dorsey, Perry 10 00

SOWS.

Sow, 2 years old or over—4 entries:
First premium, M. E. Newbern, Hennepin 20 00
Second premium, A. & J. Dorsey, Perry 10 00

Sow, 1 year old and under 2—6 entries:
First premium, M. D. Newbern, Hennepin 20 00
Second premium, A. & J. Dorsey, Perry 10 00

Sow, under 1 year old—9 entries:
First premium, M. E. Newbern, Hennepin 15 00
Second premium, A. & J. Dorsey, Perry 10 00

BREEDERS' RINGS.

Sow with litter of her own pigs, not less than 5, under 6 months old—1 entry:
First premium M. E. Newbern, Hennepin 20 00

Pen of breeding hogs—1 boar and 4 sows, over 1 year old, owned by the exhibiter—1 entry:
Premium, Taylor Bros., Waynesville 25 00

Five head of swine, of any age, the get of one boar, the sire shown with the pen, and considered in making the award—3 entries:
Premium, M. E. Newbern, Hennepin 20 00

Awarding Committee—Luke Teeple, Belvidere; W. C. Norton, Aldenville, Pa.; James W. Boston, Jacksonville.

LOT 59—CHESTER WHITE—SWEEPSTAKES.

Boar, of any age—7 entries:
Premium, A. & J Dorsey, Perry $20 00

Sow, of any age—9 entries:
Premium, A. & J. Dorsey, Perry 20 00

Awarding Committee—W. H. Beverly, Cerro Gordo; Joseph Wagner, Ridott; B. F. Atkins, Monticello.

LOT 60—ESSEX.

BOARS.

Boar, 2 years old or over—2 entries:
First premium, Taylor Bros., Waynesville $20 00

Boar, 1 year old and under 2—2 entries:
First premium, W. W. McClung, Hennepin 20 00
Second premium, Taylor Bros., Waynesville 10 00

Boar, under 1 year old—8 entries:
First premium, Abraham Reid, Jacksonville 15 00
Second premium, W. W. McClung, Hennepin 10 00

SOWS.

Sow, 2 years old or over—5 entries:
First premium, Abraham Reid, Jacksonville 20 00
Second premium, Taylor Bros., Waynesville 10 00

Sow, 1 year old and under 2—5 entries:
First premium, Abraham Reid, Jacksonville 20 00
Second premium, Taylor Bros., Waynesville 10 00

Sow, under 1 year old—7 entries:
First premium, W. W. McClung, Hennepin 15 00
Second premium, W. W. McClung, Hennepin 10 00

BREEDERS' RING.

Sow, with litter of her own pigs, not less than 5, under 6 months old—4 entries:
First premium, W. W. McClung, Hennepin 20 00
Second premium, W. W. McClung, Hennepin 10 00

Pen of breeding hogs, 1 boar and 4 sows, over one year old, owned by the exhibiter—2 entries:
Premium, Taylor Bros., Waynesville 25 00

Five head of swine, of any age, the get of one boar, the sire to be shown with the pen and considered in making the award—2 entries:
Premium, W. W. McClung, Hennepin 20 00

Awarding Committee—J. W. Dorsey, Perry; James W. Boston, Jacksonville; Daniel Kinney, Loami.

LOT 61—ESSEX—SWEEPSTAKES.

Boar, of any age—8 entries:
Premium, W. W. McClung, Hennepin $20 00

Sow, of any age—9 entries:
Premium, Abraham Reid, Jacksonville 20 00

Awarding Committee—W. H. Beverly, Cerro Gordo; Joseph Wagner, Ridott; B. F. Askens, Monticello.

LOT 62—SMALL YORKSHIRE.

BOARS.

Boar, 2 years old or over—2 entries:
First premium, Harris & Norton, Aldenville, Pa $20 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

Boar, 1 year old and under 2—1 entry:
First premium, Harris & Norton, Aldenville, Pa 20 00

Boar, under 1 year—5 entries:
First premium, Harris & Norton, Aldenville, Pa 15 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

SOWS.

Sow, 2 years old or over—2 entries:
First premium, Harris & Norton, Aldenville, Pa 20 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

Sow, 1 year old and under 2—5 entries:
First premium, Harris & Norton, Aldenville, Pa 20 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

Sow, under 1 year old—5 entries:
First premium, Harris & Norton, Aldenville, Pa $15 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

BREEDERS' RINGS.

Sow, with litter of her own pigs, not less than 5, under 6 months old—2 entries:
First premium, Harris & Norton, Aldenville, Pa 20 00
Second premium, Harris & Norton, Aldenville, Pa 10 00

Pen of breeding hogs, 1 boar and 4 sows, over 1 year old, owned by the exhibiter—2 entries:
Premium, Harris & Norton, Aldenville, Pa 25 00

Five head of swine, of any age, the get of 1 boar, the sire to be shown with the pen, and considered in making the award—1 entry:
Premium, Harris & Norton, Aldenville, Pa 20 00

Awarding Committee—James W. Boston, Jacksonville; W. W. McClung, Hennepin; A. J. Lovejoy, Jacksonville; John Augustine, Pontiac; Luke Teeple, Belvidere.

LOT 63—SMALL YORKSHIRE—SWEEPSTAKES.

Boar, of any age—2 entries:
Premium, Harris & Norton, Aldenville, Pa $20 00

Sow, of any age—5 entries:
Premium, Harris & Norton, Aldenville, Pa 20 00

Awarding Committee—James W. Boston, Jacksonville; W. W. McClung, Hennepin; A. J. Lovejoy, Jacksonville.

LOT 64—OTHER DISTINCT BREEDS.

Swine, of any distinct breed not named in the Premium List, the show to include 1 boar and not less than five sows, of any age—2 entries:
First premium, Taylor Bros., Waynesville $25 00
Second premium, G. W. Stoner, La Place 15 00

Awarding Committee—Arthur T. Fishback, Carlinville; B. F. Waters, Springfield; W. C. Norton, Aldenville, Pa.

CLASS E—POULTRY.

H. D. EMERY, *Superintendent.*

LOT 65—ASIATIC.

Pair Light Brahmas, fowls—7 entries:
First premium, J. H. Leaton, Bloomington $3 00
Second premium, J. A. Lawrence, Connersville, Ind 2 00

Pair Light Brahmas, chicks—8 entries:
First premium, J. H. Leaton, Bloomington 3 00
Second premium, J. B. Foot, Norwood Park 2 00

Pair Dark Brahmas, fowls—8 entries:
First premium, Adam Keller, Virden 3 00
Second premium, John T. Blackburn, Virden 2 00

Pair Dark Brahmas, chicks—12 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, M. L. Fullenwider, Mechanicsburg 2 00

Pair Buff Cochins, fowls—8 entries:
First premium, Shannon & Vanordstrand, Heyworth 3 00
Second premium, J. B. Foot, Norwood Park 2 00

Pair Buff Cochins, chicks—9 entries:
First premium, Blenz & Wheelock, Decatur 3 00
Second premium, John Taylor, Jacksonville 2 00

Pair Partridge Cochins, fowls—9 entries:
First premium, J. H. Leaton, Bloomington 3 00
Second premium, J. B. Foot, Norwood Park 2 00

Pair Partridge Cochins, chicks—7 entries:
First premium, H. W. Butler, Springfield 3 00
Second premium, Geo. V. Frink, Bloomington 2 00

Pair White Cochins, fowls—5 entries:
First premium, S. S. Reynolds & Co., Carlinville $3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair White Cochins, chicks—6 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, J. Otter, Elmwood 2 00

Pair Black Cochins, fowls—3 entries:
First premium, J. H. Leaton, Bloomington 3 00
Second premium, Dilley & Co., Macomb 2 00

Pair Black Cochins, chicks—8 entries:
First premium, W. H. Denman, Lincoln 3 00
Second premium, John R. Stone, Bloomington 2 00

Awarding Committee—J. M. Hummel, Sandwich; John McHenry, Virginia; G. W. Tindall, Upper Alton.

LOT 66—DORKING, DOMINIQUE, PLYMOUTH ROCK.

Pair Silver Gray, fowls—1 entry:
Second premium, P. A. Bartlett, Jacksonville $2 00

Pair White, fowls—1 entry:
First premium, J. Otter, Elmwood 3 00

Pair Colored, fowls—1 entry:
Second premium, J. Otter, Elmwood 2 00

Pair Plymouth Rock, fowls—10 entries:
First premium, S. S. Reynolds & Co., Carlinville 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair Plymouth Rock, chicks—5 entries:
First premium, E. F. L. Rautenberg, Lincoln 3 00
Second premium, J. Otter, Elmwood 2 00

Awarding Committee—G. W. Tindall, Upper Alton; Adam Keller, Virden.

LOT 67—SPANISH.

Pair Black Spanish (white face), fowls—5 entries:
First premium, P. A. Bartlett, Jacksonville 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair Black Spanish, chicks—3 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair White Leghorn, fowls—3 entries:
First premium, S. S. Reynolds & Co., Carlinville 3 00
Second premium, Dilley & Co., Macomb 2 00

Pair White Leghorn, chicks—9 entries:
First premium, John R. Campbell, Springfield 3 00
Second premium, S. S. Reynolds & Co., Carlinville 2 00

Pair Brown Leghorn, fowls—2 entries:
First premium, Blenz & Wheelock, Decatur 3 00

Pair Brown Leghorn, chicks—3 entries:
First premium, J. Otter, Elmwood 3 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair Dominique Leghorn, fowls—1 entry:
Second premium, J. Otter, Elmwood 2 00

Pair Dominique Leghorn, chicks—1 entry:
Second premium, J. Otter, Elmwood 2 00

Pair Black Leghorn, fowls—1 entry:
Second premium, J. Otter, Elmwood 2 00

Awarding Committee—F. A. Jones, Bement; G. W. Tindall, Upper Alton.

LOT 68—HAMBURGS.

Pair Golden-penciled, fowls—3 entries:
First premium, J. Otter, Elmwood 3 00

Pair Golden-spangled, chicks—4 entries:
First premium, Adam Keller, Virden 3 00
Second premium, Dilley & Co., Macomb 2 00

Pair Silver-spangled, fowls—3 entries:
First premium, J. Otter, Elmwood..... $3 00
Second premium, H. Ringhouse, Bloomington..... 2 00

Pair Silver-spangled, chicks—4 entries:
First premium, J. Otter, Elmwood..... 3 00
Second premium, H. Ringhouse, Bloomington..... 2 00

Pair Black, fowls—2 entries;
First premium, Dilley & Co., Macomb..... 3 00
Second premium, J. Otter, Elmwood..... 2 00

Pair Black, chicks—2 entries:
First premium, J. Otter, Elmwood..... 3 00

Awarding Committee—G. W. Tindall, Upper Alton; W. H. Lightfoot, Springfield; J. B. Foot, Norwood Park.

LOT 69—POLISH.

Pair Golden-spangled, fowls—2 entries:
First premium, J. Otter, Elmwood..... $3 00

Pair Golden-spangled, chicks—1 entry:
First premium, Blenz & Wheelock, Decatur..... 3 00

Pair Silver-spangled, fowls—2 entries:
First premium, Blenz & Wheelock, Decatur..... 3 00
Second premium, J. Otter, Elmwood..... 2 00

Pair Silver-spangled, chicks—3 entries:
First premium, Adam Keller, Virden..... 3 00
Second premium, Adam Keller, Virden..... 2 00

Pair White-crested Black, fowls—1 entry:
First premium, Dilley & Co., Macomb..... 3 00

Pair White-crested Black, chicks—2 entries:
First premium, J. Otter, Elmwood..... 3 00
Second premium, Dilley & Co., Macomb..... 2 00

Awarding Committee—G. W. Tindall, Upper Alton; A. E. Jenner, Belvidere; John O'Hara, Carbondale.

LOT 70—FRENCH.

Pair Houdan, fowls—3 entries:
First premium, S. S. Reynolds & Co., Carlinville..... $3 00
Second premium, Dilley & Co., Macomb..... 2 00

Pair Houdan, chicks—2 entries:
First premium, S. S. Reynolds & Co., Carlinville..... 3 00

Awarding Committee—J. M. Hummel, Sandwich; H. Ringhouse, Bloomington.

LOT 71—GAME.

Pair Black-breasted Red, fowls—5 entries:
First premium, P. A. Bartlett, Jacksonville..... 3 00
Second premium, John Taylor, Jacksonville..... 2 00

Pair Black-breasted Red, chicks—2 entries:
First premium, Blenz & Wheelock, Decatur..... 3 00
Second premium, John Taylor, Jacksonville..... 2 00

Pair Brown Red, fowls—1 entry:
Second premium, J. Otter, Elmwood..... 2 00

Pair Brown Red, chicks—2 entries:
Second premium, J. Otter, Elmwood..... 2 00

Pair Silver Duck Wing, chicks—1 entry:
Second premium, J. Otter, Elmwood..... 2 00

Pair Spangled, fowls—1 entry:
First premium, J. Otter, Elmwood..... 3 00

Pair Black, chicks—1 entry:
Second premium, J. Otter, Elmwood..... 2 00

Pair Blue, chicks—1 entry:
First premium, J. Otter, Elmwood..... 3 00

Awarding Committee—W. H. Lightfoot, Springfield; J. B. Foot, Norwood Park; G. W. Tindall, Upper Alton.

LOT 72—BANTAMS.

Pair Sebright, fowls—6 entries:
First premium, J. Otter, Elmwood $3 00
Second premium, J. H. Leaton, Bloomington 2 00

Pair Sebright, chicks—7 entries:
First premium, S. S. Reynolds & Co., Carlinville 3 00
Second premium, Shannon & Vanordstrand, Carlinville 2 00

Pair Red Pile Game, fowls—2 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair Red Pile Game, chicks—2 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair White, fowls—2 entries:
First premium, S. S. Reynolds & Co., Carlinville 3 00
Second premium, Wm. Schenck, Maroa 2 00

Pair White, chicks—1 entry:
Second premium, Mrs. W. E. Shutt, Springfield 2 00

Pair Black, fowls—1 entry:
First premium, P. A. Bartlett, Jacksonville 3 00

Pair Black, chicks—1 entry:
First premium, P. A. Bartlett, Jacksonville 3 00

Pair Black Red Game, fowls—6 entries:
First premium, Geo. V. Frink, Bloomington 3 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair Black Red Game, chicks—7 entries:
First premium, Geo. V. Frink, Bloomington 3 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair Duck Wing, fowls—2 entries:
First premium, P. A. Bartlett, Jacksonville 3 00
Second premium, Mrs. W. A. Bennett, Springfield 2 00

Pair Duck Wing, chicks—2 entries:
First premium, Mrs. W. A. Bennett, Springfield 3 00
Second premium, P. A. Bartlett, Jacksonville 2 00

Awarding Committee—W. H. Lightfoot, Springfield; John R. Campbell, Springfield; G. W. Tindall, Upper Alton.

LOT 73—MISCELLANEOUS.

Pair Frizzlies, fowls—1 entry:
First premium, J. Otter, Elmwood $3 00

Pair Silkies, fowls—1 entry:
First premium, J. Otter, Elmwood 3 00

Pair Rumpless, fowls—1 entry:
Second premium, J. Otter, Elmwood 2 00

Pair fowls, any new variety, of merit—4 entries:
Premium, H. Ringhouse, Bloomington 5 00

Awarding Committee—W. H. Lightfoot, Springfield; J. B. Foot, Norwood Park; G. W. Tindall, Upper Alton.

LOT 74—GUINEAS.

Pair White, fowls—3 entries:
First premium, H. Ringhouse, Bloomington $3 00
Second premium, Dilley & Co., Macomb 2 00

Pair Common, fowls—3 entries:
First primium, J. Otter, Elmwood 3 00
Second premium, Mrs. W. A. Bennett, Springfield 2 00

Pair Common, chicks—4 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Awarding Committee—P. A. Bartlett, Jacksonville; W. H. Lightfoot, Springfield; S. S. Reynolds, Carlinville.

LOT 75—TURKEYS.

Pair Bronze, fowls—7 entries:
First premium, Mrs. J. F. Fulton, Petersburg $4 00
Second premium, Mrs. J. F. Fulton, Petersburg 2 00

Pair Bronze, chicks—6 entries:
First premium, H. Ringhouse, Bloomington 4 00
Second premium, P. A. Bartlett, Jacksonville 2 00

Pair Black, fowls—2 entries:
First premium, P. A. Bartlett, Jacksonville 4 00
Second premium, Wm. Schenck, Maroa 2 00

Pair Black, chicks—1 entry:
First premium, P. A. Bartlett, Jacksonville 4 00

Pair Buff, fowls—1 entry:
Second premium, J. Otter, Elmwood 2 00

Pair White, fowls—3 entries:
First premium, Blenz & Wheelock, Decatur 4 00

Awarding Committee—W. H. Lightfoot, Springfield; J. B. Foot, Norwood Park; G. W. Tindall, Upper Alton.

LOL 76—DUCKS.

Pair Aylesbury—3 entries:
First premium, H. Ringhouse, Bloomington $3 00
Second premium, J. Otter, Elmwood 2 00

Pair Rouen—6 entries:
First premium, Blenz & Wheelock, Decatur 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair Cayuga—5 entries:
First premium, J. Otter, Elmwood 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair White Muscovy—5 entries:
First premium, P. A. Bartlett, Jacksonville 3 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair Colored Muscovy—3 entries:
First premium, J. Otter, Elmwood 3 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair White-crested—4 entries:
First premium, P. A. Bartlett, Jacksonville 3 00
Second premium, J. Otter, Elmwood 2 00

Pair Pekin—7 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, S. S. Reynolds & Co., Carlinville 2 00

Pair Call—4 entries:
First premium, P. A. Bartlett, Jacksonville 3 00
Second premium, J. Otter, Elmwood 2 00

Awarding Committee—John O'Hara, Carbondale; N. Hall, Bloomington; A. E. Jenner, Belvidere.

LOT 77—GEESE.

Pair Embden—4 entries:
First premium, J. Otter, Elmwood $4 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair Toulouse—6 entries:
First premium, J. Otter, Elmwood 4 00
Second premium, P. A. Bartlett, Jacksonville 2 00

Pair White China—4 entries:
First premium, P. A. Bartlett, Jacksonville 4 00
Second premium, Blenz & Wheelock, Decatur 2 00

Pair African—1 entry:
First premium, Blenz & Wheelock, Decatur 4 00

Awarding Committee—John O'Hara, Carbondale; A. E. Jenner, Belvidere.

LOT 78—RABBITS.

Pair Madagascar—2 entries:
First premium, J. E. Popkess, Paris $3 00
Second premium, W. B. Read, Bloomington 2 00

Pair White Angoras—4 entries:
First premium, J. E. Popkess, Paris 3 00
Second premium, W. B. Read, Bloomington 2 00

Pair Fawn Angoras—3 entries:
First premium, W. B. Read, Bloomington 3 00

Pair Himalay—4 entries:
First premium, W. B. Read, Bloomington 3 00
Second premium, J. E. Popkess, Paris 2 00

Pair Dutch—4 entries:
First premium, W. B. Read, Bloomington 3 00
Second premium, W. B. Read, Bloomington 2 00

Pair Belgian Hares—3 entries:
First premium, W. B. Read, Bloomington 3 00
Second premium, W. B. Read, Bloomington 2 00

Pair English Rabbits—4 entries:
First premium, J. E. Popkess, Paris 3 00
Second premium, W. B. Read, Bloomington 2 00

Awarding Committee—H. Ringhouse, Bloomington.

LOT 79—FERRETS.

Pair English Ferrets—2 entries;
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Pair American White Ferrets—3 entries:
First premium, H. Ringhouse, Bloomington 3 00
Second premium, H. Ringhouse, Bloomington 2 00

Awarding Committee—W. H. Lightfoot, Springfield; P. A. Bartlett, Jacksonville, S. S. Reynolds, Carlinville.

LOT 80—DISPLAYS.

Displays of varieties of Poultry—7 entries:
First premium, J. Otter, Elmwood $15 00
Second premium, H. Ringhouse, Bloomington 10 00

Display of Pigeons, not less than 10 varieties—4 entries;
First premium, P. A. Bartlett, Jacksonville 10 00
Second premium, Blenz & Wheelock, Decatur 5 00

Awarding Committee—W. H. Lightfoot, Springfield; J. B. Foot, Norwood Park.

CLASS F—MECHANICS.

Section 1.

J. M. EPLER, *Superintendent.*

LOT 81—STOVES, CASTINGS, WORKED METALS, ETC.

Display of Stoves, Ranges, Tin and Copper Ware:
First premium, Henson Robinson, Springfield ..... Diploma and $20 00
Second premium, J. H. Barkley & Co., Springfield 10 00

Display of Brass and Iron Wire Work:
Premium, Charles Fischer, Springfield ..... Silver medal

Display of Silver-plated Ware:
Premium, Henson Robinson, Springfield ..... $5 00 and silver medal

Weather Strips:
Premium, W. J. Anderson, Hillsdale, Iowa ..... Silver medal

Awarding Committee—John C. Lamb, Springfield; Geo. H. Martin, Little Indian; B. C. Randall, Ashland.

LOT 82—HOUSEHOLD FURNITURE.

Display of General Household Furniture:
Premium, J. H. Barkley & Co., Springfield.....Diploma and $20 00

Twelve Brooms:
Premium, Geo. Gall, Springfield.....Silver medal

Churn:
Premium, Rhodes & Palmer, Rockford.....Silver medal

Washing Machine:
Premium, W. Wright, Lincoln.....Silver medal

Awarding Committee—J. W. Black, Virginia; L. M. Lindley, Little Indian; Robert A. Hall, Virginia.

LOT 83—MANUFACTURES OF VARIOUS KINDS.

Display of Drain Tile, several sizes:
Premium, Drain Tile Works, Springfield.....$10 00 and silver medal

Display of Paints and Oils:
Premium, P. F. Kimble, Springfield.....Silver medal

Display of Harness and Saddles:
Premium, C. F. Weisenmeyer, Springfield.....Silver medal

Display of Paper-hanging and borders:
Premium, P. F. Kimble, Springfield.....Silver medal

Display of Surgical and Dental Instruments:
Premium, J. LaF. King, Springfield.....Silver medal

Display of Boots and Shoes:
Premium, Corkery & Triebel, Springfield.....Silver medal

Display of Hats and Caps:
Premium, C. Wolf & Co., Springfield.....Silver medal

Set of Carriage Harness:
Premium, C. F. Weisenmeyer, Springfield.....Silver medal

Set of Single Buggy Harness:
Premium, C. F. Weisenmeyer, Springfield.....Silver medal

Set of Wagon Harness:
Premium, C. F. Weisenmeyer, Springfield.....Silver medal

Gentleman's Saddle:
Premium, C. F. Weisenmeyer, Springfield.....Silver medal

Awarding Committee—Jacob A. Epler, Virginia; Oswell Skiles, Virginia; J. C. Burruss, Carrollton.

CLASS F—MECHANICS.

Section 2.

W. M. SMITH, *Superintendent.*

Portable Farm Steam Engine:
Premium, G. Westinghouse & Co., Schenectady, N. Y.....Diploma

Pump for Well:
Premium, Mast, Foos & Co., Springfield, Ohio.....Silver medal

Pump for Cistern:
Premium, Powell & Douglas, Waukegan.....Silver medal

Portable Grist Mill, for farm use:
Premium, American Grinding Mill Co., Chicago.....Diploma

Saw-mill and Engine, for lumber:
Premium, Chandler & Taylor, Indianapolis, Ind.....Silver medal

Machine for making Drain Tile:
Premium, H. Brewer & Co, Tecumseh, Mich.....Diploma and $20 00

Machine for making Brick:
Premium, Chandler & Taylor, Indianapolis, Ind.....Diploma

100 assorted Drain Tile:
Premium, Wm. P. Craig, Woodson, Ill.....Silver medal

Machine for Opening Ditch for Drain Tile:
Premium, Ulric Blickensderfer, Erie, Penn.....Silver medal

Road-making Machine:
Premium, Wauchope Road Grader Manufacturing Co., Chicago.....Diploma and $20 00

Road Scraper:
Premium, Morrison Bros., Fort Madison, Iowa.....Silver medal

Horse Hay Fork:
Premium, J. E. Porter, Ottawa.....Silver medal

Horse Hay Derrick, for stacking:
Premium, J. E. Porter, Ottawa.....Silver medal

Hay Elevator and Carrier, for moving hay in barn:
Premium, J. E. Porter, Ottawa.....Silver medal

Four Horse Power, for general farm purposes:
Premium, G. A. VanDuyn & Co., Springfield..... $10 00

Hay and Straw Cutter:
Premium, Keystone Manufacturing Co., Sterling.....Silver medal

Mower Knife Grinder:
Premium, Powell & Douglas, Waukegan.....Silver medal

Awarding Committee—Joseph G. Moore, Sabina; Louis O. Gillham, Alton; Wm. T. Beekman, Petersburg.

LOT 87—IMPLEMENTS, VEHICLES, ETC.

Steaming Apparatus, for cooking food for stock:
Premium, Haxtun Steam Heater Co., Kewanee.....Diploma and $10 00

Hay and Cattle Scales, for farm use:
Premium, Comstock Scale Works, Mt. Pleasant, Iowa.....Diploma and 10 00

Display of two-seated Carriages, of various kinds:
Premium, Withey Bros., Springfield.....Diploma and 10 00

Display of Buggies:
Premium, Withey Bros., Springfield.....Diploma and 10 00

Two Horse Carriage:
Premium, Withey Bros., Springfield.....Silver medal

Top Buggy:
Premium, Wayne Bros., Decatur.....Diploma

Open Buggy:
Premium, Withey Bros., Springfield.....Silver medal

Barouche:
Premium, Withey Bros. Springfield.....Silver medal

Two Horse Wagon:
Premium, Schuttler & Holtz, Chicago.....Silver medal

Spring Wagon:
Premium, Spring Wagon Co., Watertown, N. Y.....Diploma and $5 00

One Horse Cart:
Premium, Schuttler & Holtz, Chicago.....Silver medal

Well-boring Machine:
Premium, Sidney H. Horn, St. Louis, Mo.....Diploma

Awarding Committee—Henry A. Judd, Aurora; J.W. Phillips, Decatur; Joseph G. Moore, Sabina.

CLASS G—FARM PRODUCTS.

SAMUEL DOUGLAS, *Superintendent.*

LOT 89—GRAINS AND SEEDS.

Sample White Winter Wheat, one bushel:
First premium, A. Earnhart, Anna..... $10 00
Second premium, Edwin Watts, Farmingdale..... 5 00

Sample Red Winter Wheat, one bushel:
First premium, Geo. Cline, Anna $10 00
Second premium, Mrs. E. Furrow, Rochester 5 00

Sample Red Spring Wheat, one bushel:
First premium, Wm. Schenck, Maroa 10 00
Second premium, Dilley & Co., Macomb 5 00

Sample Rye, one bushel:
First premium, Logan McMurray, Farmingdale 5 00
Second premium, Wm. Schenck, Maroa 3 00

Sample Oats, 1 bushel:
First premium, John Wilcox, Rockford 5 00
Second premium, Dilley & Co., Macomb 3 00

Sample Spring Barley, 1 bushel:
First premium, Wm. Schenck, Maroa 5 00

Sample White Indian Corn, in the ear, 1 bushel:
First premium, H. G. Spraker, Effingham 5 00
Second premium, Charles Beerup, Springfield 3 00

Sample Yellow Indian Corn, in the ear, 1 bushel:
First premium, Logan McMurray, Farmingdale 5 00
Second premium, William Sanders, Warrensburg 3 00

Sample Corn, on the stalk, five stalks:
First premium, Charles Beerup, Springfield 2 00
Second premium, Wm. Schenck, Maroa 1 00

Sample Pop-corn, 1 peck:
First premium, Mrs. Geo. Rhea, Camp Point 3 00
Second premium, A. R. Belt, Springfield 2 00

Sample Buckwheat, 1 bushel:
First premium, Charles Beerup, Springfield 5 00

Sample Timothy Seed, 1 bushel:
First premium, A. B. Watts, Farmingdale 5 00
Second premium, Wm. Schenck, Maroa 2 00

Sample Clover Seed, 1 bushel;
First premium, A. B. Watts, Farmingdale 5 00
Second premium, Jas. A. Lawler, Rushville 2 00

Sample Bluegrass Seed, 1 bushel:
First premium, John T. Epler, Pleasant Plains 5 00

Bale of Broom-corn:
First premium, Felix Carver, Springfield 5 00
Second premium, Felix Carver 2 00

White Field Beans, half bushel:
First premium, J. O. Cline, Effingham 5 00
Second premium, Mrs. E. Furrow, Rochester 2 00

Lima Beans, 1 peck:
Premium, Wm. Stevens, Springfield 5 00

Variety of Garden Peas, one quart each:
Premium, Wm. Stevens, Springfield 2 00

Castor Beans, 1 bushel:
Premium, Wm. Stevens, Springfield 10 00

Display of Grains and Seeds, samples distinct from foregoing:
Premium, Wm. Stevens, Springfield 30 00

Awarding Committee—James S. Taggart, Ridott; W. K. Dunlap, Dunlap; W. H. Warder, Marion.

LOT 90—VEGETABLES.

Early Irish Potatoes, one bushel:
First premium, A. R. Belt, Springfield 5 00
Second premium, Wm. Stevens, Springfield 3 00

Late Irish Potatoes, one bushel:
First premium, M. L. Bowman, Blue Mound 5 00
Second premium, John Wilcox, Rockford 3 00

Sweet Potatoes, 1 bushel:
First premium, A. R. Belt, Springfield 5 00
Second premium, Mrs. J. Beeler, Springfield 3 00

Onions, 1 bushel:
First premium, H. Brimbleson, Woosung $4 00
Second premium, Mrs. E. Primm, Athens 2 00

Table Turnips, 1 bushel:
First premium, C. G. Bœhme, Freeport 4 00

Table Beets, 1 bushel:
First premium, John McGready, Springfield 4 00
Second premium, Henry Converse, Springfield 2 00

Mangel Wurzels, 1 bushel:
First premium, Felix Carver, Springfield 4 00
Second premium, John McGready, Springfield 2 00

Table Parsnips, 1 bushel:
First premium, C. G. Bœhme, Freeport 4 00
Second premium, Mrs. E. Furrow, Rochester 2 00

Celery, 12 stalks:
First premium, C. G. Bœhme, Freeport 4 00
Second premium, Wm. Stevens, Springfield 2 00

Cabbage, 6 heads:
First premium, Wm. Stevens, Springfield 4 00
Second premium, C. G. Bœhme, Freeport 2 00

Tomatoes, 1 peck:
First premium, A. R. Belt, Springfield 4 00
Second premium, Mrs. J. Beeler, Springfield 2 00

Six Pumpkins:
Premium, Wm. Stevens, Springfield 4 00

Six Squashes:
Premium, Charles Beerup, Springfield 4 00

Six Watermelons:
First premium, Wm. M. Landreth, Forest City 4 00
Second premium, Wm. M. Landreth, Forest City 2 00

Six Muskmelons:
First premium, Wm. Stevens, Springfield 4 00
Second premium, Mrs. J. Beeler, Springfield 2 00

Carrots, ½ bushel:
Premium, Wm. Stevens, Springfield 5 00

Six Egg Plant, fruit:
First premium, Wm. Stevens, Springfield 4 00
Second premium, John Bauscher, Freeport 2 00

Bale of Hops:
Premium, W. H. Lightfoot, Springfield 4 00

Variety of Garden Seeds, named:
First premium, Wm. Stevens, Springfield 10 00
Second premium, John Bauscher, Freeport 5 00

Sample of Tobacco, "in hand," 10 pounds:
First premium, C. G. Bœhme, Freeport 5 00
Second premium, John Bauscher, Freeport 3 00

Sugar Beets, 1 bushel:
First premium, John McGready, Springfield 4 00
Second premium, C. G. Bœhme, Freeport 2 00

Awarding Committee—James S. Taggart, Ridott; W. K. Dunlap, Dunlap; W. H. Warder, Marion.

LOT 91—BUTTER, CHEESE, ETC.

Butter made at any time during the year, 10 pounds:
First premium, Mrs. W. A. Bennett, Springfield $10 00
Second premium, J. Shinn & Son, Springfield 5 00

Butter made in May or June, 10 pounds:
Premium, Mrs. W. A. Bennett, Springfield 10 00

Fresh Butter, 10 pounds:
Premium, Mrs. W. A. Bennett, Springfield 10 00

Cured Cheese, under 1 year old:
First premium, J. Shinn & Son, Springfield $10 00
Second premium, Harry Weeden, Sheboygan, Wis 5 00

New Cheese:
First premium, Harry Weeden, Sheboygan, Wis 10 00
Second premium, J. Shinn & Son, Springfield 5 00

Display of Cheese, samples distinct from foregoing:
Premium, J. Shinn & Son, Springfield 15 00

Honey, 10 pounds:
First premium, Mrs. L. M. Thomas, Terre Haute, Ind 5 00
Second premium, Wm. Schenck, Maroa 3 00

Awarding Committee—Mrs. Mattie A. Moore, Polo; Anne M. Crum, Ashland; F. E. Baker, Champaign.

LOT 92—BREAD, CAKES, ETC.

Wheat Bread, Hop Yeast:
First premium, Miss Sarah A. Clow, Chatham $4 00
Second premium, Miss Lucy Brown, Springfield 2 00

Wheat Bread—Milk Rising:
First premium, Mrs. J. Nearing, Kenney 4 00
Second premium, Mrs. N E. Taylor, Jacksonville 2 00

Wheat Bread—Unbolted Flour:
First premium, Mrs. W. A. Bennett, Springfield 4 00
Second premium, Mrs. T. A. Delaney, Springfield 2 00

Rye Bread:
First premium, Mrs. W. A. Bennett, Springfield 4 00
Second premium, Mrs. J. F. Fulton, Petersburg 2 00

Corn Bread:
First premium, Mrs. H. B. Barnard, Pekin 4 00
Second premium, Mrs. H. B. Barnard, Pekin 2 00

Sponge Cake:
First premium, Mrs. A. N. McDonald, Jacksonville 4 00
Second premium, Misses A. and V. Harnsberger, Pleasant Plains 2 00

Snow Cake:
First premium, Mrs. W. E. Shutt, Springfield 4 00
Second premium, Mrs. P. R. Wilhelm, Springfield 2 00

Pound Cake:
First premium, Mrs. N. E. Taylor, Jacksonville 4 00
Second premium, Mrs. A. N. McDonald, Jacksonville 2 00

Jelly Cake:
First premium, Mrs. W. F. Dunbar, Springfield 4 00
Second premium, E. Talbott, Bradfordton 2 00

Fruit Cake:
First premium, Miss Maud C. Hinsey, Pekin 4 00
Second premium, Mrs. A. N. McDonald, Jacksonville 2 00

Silver Cake:
First premium, Mrs. A. N. McDonald, Jacksonville 4 00
Second premium, Miss Victoria Fisher, Springfield 2 00

Gold Cake:
First premium, Mrs. A. N. McDonald, Jacksonville 4 00
Second premium, Miss Victoria Fisher, Springfield 2 00

Nut Cake:
First premium, Miss Nettie Sands, Springfield 4 00

Doughnuts:
First premium, Mrs. W. E. Shutt, Springfield 4 00
Second premium, Mrs. L. E. Rockwell, Quincy 2.00

Ginger Cake:
First premium, Mrs. Cellie Keene, Atlanta 4 00
Second premium, Mrs. Cellie Keene, Atlanta 2 00

Marble Cake:
First premium, Mrs. A. N. McDonald, Jacksonville 4 00
Second premium, Mrs. N. E. Taylor, Jacksonville 2 00

Orange Cake:
First premium, Mrs. P. R. Wilhelm, Springfield $4 00

Lemon Cake:
First premium, Miss Carrie Cullom, Springfield 4 00
Second premium, Mrs. W. F. Dunbar, Springfield 2 00

Cocoanut Cake:
First premium, Mrs. W. F. Dunbar, Springfield 4 00
Second premium, Mrs. Adam Nelch, Springfield 2 00

Queen of the Prairie Cake:
First premium, Mrs. W. M. Buffington, Monmouth 4 00
Second premium, Miss Maude C. Hinsey, Pekin 2 00

Sorghum Molasses, 1 quart:
First premium, Mrs. J. Beeber, Springfield 3 00
Second premium, Mrs. Amos Grubb, Springfield 2 00

Sample Flavoring Extracts, in variety:
Premium, D. C. Brown, Springfield ..... Diploma

Pound Browned Coffee:
Mrs. L. E. Rockwell, Quincy 1 00

Can Sweet Corn:
Premium, Mrs. J. D. Mehrtens, Atlanta 2 00

Can Common Corn:
Premium, Mrs. Cellie Keene, Atlanta 2 00

Awarding Committee—Mrs. Mattie A. Moore, Polo; Mrs. V. L. Thomas, Carbondale; Anna M. Crum, Ashland; F. E. Baker, Champaign.

LOT 93—BREAD AND CAKES.

By Girl under 13 years of age.

Wheat Bread, hop yeast:
First premium, Minnie Montgomery, Decatur $4 00
Second premium, Grace Watts, Farmingdale 2 00

Wheat Bread, milk rising:
First premium, Grace Watts, Farmingdale 4 00
Second premium, Janey S. Taylor, Jacksonville 2 00

Wheat Bread, unbolted flour:
First premium, Iva E. Robinson, Atlanta 4 00
Second premium, Lou Keene, Atlanta 2 00

Rye Bread:
First premium, Lou Keene, Atlanta 4 00
Second premium, Iva E. Robinson, Atlanta 2 00

Corn Bread:
First premium, Glodie Barnard, Pekin 4 00
Second premium, Glodie Barnard, Pekin 2 00

Sponge Cake:
First premium, G. E. McDonald, Jacksonville 4 00
Second premium, Janey S. Taylor, Jacksonville 2 00

Snow Cake:
First premium, Maggie Shutt, Springfield 4 00
Second premium, G. E. McDonald, Jacksonville 2 00

Pound Cake:
First premium, Janey S. Taylor, Jacksonville 4 00
Second premium, G. E. McDonald, Jacksonville 2 00

Jelly Cake:
First premium, Nettie Hampton, Springfield 4 00
Second premium, Iva E. Robinson, Atlanta 2 00

Fruit Cake:
First premium, Mrs. John T. Epler, Pleasant Plains 4 00
Second premium, G. E. McDonald, Jacksonville 2 00

Silver Cake:
First premium, G. E. McDonald, Jacksonville 4 00
Second premium, Nettie Hampton, Springfield 2 00

Gold Cake:
First premium, G. E. McDonald, Jacksonville $4 00
Second premium, Janey S. Taylor, Jacksonville 2 00

Nut Cake:
First premium, Nettie Hampton, Springfield 4 00

Doughnuts:
First premium, Maggie Shutt, Springfield 4 00
Second premium, Nettie Hampton, Springfield 2 00

Ginger Cake:
First premium, Lou Keene, Atlanta 4 00
Second premium, Grace Watts, Farmingdale 2 00

Awarding Comm 'ee—Mrs. Mattie A. Moore, Polo; Anna L. Crum, Ashland; Mrs. V. L. Thomas, Carbond. e; F. E. Baker, Champaign.

CLASS H—HORTICULTURE AND FLORICULTURE.

Section 1—Trees, Flowers, Plants, Etc.

GEO. S. HASKELL, *Superintendent.*

For Professional Florists and Dealers only.

Collection of distinct varieties of Greenhouse and Hothouse plants, not including specimens entered for other premiums:
First premium, Louis Unverzagt, Springfield ..... Diploma and $30 00
Third premium, H. L. Phelps, Springfield 10 00

Collection of Agaves and Aloes:
First premium, Louis Unverzagt, Springfield 3 00

Collection of Cactus, (excluding Agaves and Aloes):
First premium, Louis Unverzagt, Springfield 3 00

Varieties of Rex Begonias:
First premium, H. L. Phelps, Springfield 3 00

Collection of Winter flowering Begonias:
First premium, Louis Unverzagt, Springfield 3 00
Second premium, H. L. Phelps, Springfield 2 00

Collection of Geraniums:
First premium, H. L. Phelps, Springfield 8 00
Second premium, Louis Unverzagt, Springfield 5 00

Seedling Geranium, shown for the first time:
Premium, H. L. Phelps, Springfield 3 00

Collection Foliage and Variegated Geraniums:
First premium, John Bauscher, Freeport 3 00
Second premium, Louis Unverzagt, Springfield 2 00

Collection of Carnations, in bloom:
First premium, Louis Unverzagt, Springfield 5 00
Second premium, H. L. Phelps, Springfield 3 00

Collection of Roses in Pots, in bloom:
First premium, H. L. Phelps, Springfield 8 00
Second premium, Louis Unverzagt, Springfield 4 00

Pair Hanging Baskets, of Plants:
First premium, Louis Unverzagt, Springfield 3 00

Single Hanging Basket, of Plants:
First premium, H. L. Phelps, Springfield 2 00
Second premium, Louis Unverzagt, Springfield 1 00

Single Specimen Plant, of any kind:
Premium, Louis Unverzagt, Springfield 4 00

Collection of Palms:
First premium, Louis Unverzagt, Springfield 8 00

Single Palm:
Premium, Louis Unverzagt, Springfield..... $4 00

Single Ficus:
Premium, Louis Unverzagt, Springfield..... 4 00

Collection of Mosses:
Premium, Louis Unverzagt, Springfield..... 3 00

Collection of Hothouse and Greenhouse Climbers:
First premium, H. L. Phelps, Springfield..... 3 00

Collection of Coleus:
First premium, Louis Unverzagt, Springfield..... 4 00
Second premium, John Bauscher, Freeport..... 3 00

Twelve Crotons:
First premium, Louis Unverzagt, Springfield..... 5 00

Collection of Greenhouse and Bedding Plants, for amateur culture, twenty-five varieties:
Premium, Louis Unverzagt, Springfield..... 10 00

Collection of Bulbs, correctly named:
Premium, J. C. Vaughan, Chicago.....Silver medal and 5 00

Awarding Committee—H. G. Savage, Chicago; Mrs. W. E. Shutt, Springfield; M. Doyle, Springfield.

LOT 95—CUT FLOWERS.

For Professional Florists.

Collection of Cut Flowers:
First premium, E. Wyman, Jr., Rockford..... $8 00

Collection of Asters:
First premium, E. Wyman, Rockford..... 5 00

Collection of Dahlias, named:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of eighteen Dahlias, dissimilar blooms:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Pompone or Boquet Dahlias, six varieties:
First premium, E. Wyman, Jr., Rockford..... 3 00

Collection of Everlastings:
First premium, James Cole, Peoria..... 2 00

Collection of Grasses:
Premium, J. C. Vaughan, Chicago..... 2 00

Collection of Gladiolii:
First premium, J. C. Vaughan, Chicago..... 5 00
Second premium, E. Wyman, Jr., Rockford..... 3 00

Collection of Pansies:
First premium, E. Wyman, Rockford..... 5 00

Collection of Perennial Phlox:
Premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Phlox Drummondi:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Tube-roses:
First premium, James Cole, Peoria..... 5 00
Second premium, Louis Unverzagt, Springfield..... 3 00

Collection of Verbenas, raised from seed:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Cut Geraniums:
First premium, H. L. Phelps, Springfield..... 5 00

Collection of Double Zinnia:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Single Petunias:
First premium, E. Wyman, Jr., Rockford..... 5 00

Collection of Cut Flowers, including above:
Premium, E. Wyman, Jr., Rockford.....Diploma

FLORAL DESIGNS, BOUQUETS, ETC.

Floral Design:
First premium, Louis Unverzagt, Springfield..... $15 00
Second premium, H. L. Phelps, Springfield..... 10 00

Design of Dahlias:
Premium, James Cole, Peoria..... 5 00

Floral Wreath:
Premium, Louis Unverzagt, Springfield..... 5 00

Design of Cut Flowers:
Premium, James Cole, Peoria..... 5 00

Pair Flat Hand Bouquets:
Premium, Louis Unverzagt, Springfield..... 5 00

Pair Round Hand Boquets:
Premium, Louis Unverzagt, Springfield..... 5 00

Basket of Cut Flowers:
Premium, H. L. Phelps, Springfield..... 5 00

Basket of Winter Flowers:
Premium, H. L. Phelps, Springfield..... 5 00

Pair Boquets of Grasses:
Premium, James Cole, Peoria..... 5 00

Pair Bridal Bouquets:
Premium, Louis Unverzagt, Springfield..... 5 00

Harp or Lyre:
Premium, Louis Unverzagt, Springfield..... 5 00

Cross:
Premium, Louis Unverzagt, Springfield..... 5 00

Crown:
Premium, Louis Unverzagt, Springfield..... 5 00

Display of Florist's requisites:
Premium, J. C. Vaughan, Chicago.....Diploma and 10 00

Awarding Committee—H. G. Savage, Chicago; Mrs. W. E. Shutt, Springfield; M. Doyle, Springfield.

LOT 96—FLOWERS AND PLANTS—BY AMATEURS.

[No Professional Florist allowed to compete.]

Collection of Greenhouse, Hothouse and Bedding Plants in pots:
First premium, Mrs. J. A. Vincent, Springfield..... $12 00
Second premium, C. A. Gehrman, Springfield..... 8 00

Collection of Cactus and Aloes:
First premium, Mrs. J. A Vincent, Springfield..... 3 00
Second premium, Mrs. E. Bauscher, Freeport..... 2 00

Collection of Winter Blooming Begonias:
First premium, Henry Funk, Springfield..... 2 00
Second premium, Mrs. J. A. Vincent, Springfield..... 1 00

Collection of Carnations, in bloom:
First premium, C. A. Gehrman, Springfield..... 3 00
Second premium, Mrs. J. A. Vincent, Springfield..... 2 00

Collection of Geraniums:
First premium, Mrs. J. A. Vincent, Springfield..... 3 00
Second premium, Mrs. E. Bauscher, Freeport..... 2 00

Collection of Foliage Plants:
First premium, Mrs. E. Bauscher, Freeport..... 3 00
Second premium, Mrs. J. A. Vincent, Springfield..... 2 00

Collection of Pot Roses, in bloom, six varieties:
First premium, Mrs. J. A. Vincent, Springfield $3 00
Second premium, Mrs. E. Bauscher, Freeport 2 00

Single Hanging-basket of Plants:
First premium, Mrs. J. A. Vincent, Springfield 2 00

Rustic Stand, filled with plants:
Premium, Mrs. E. Bauscher, Freeport 4 00

Vase for Lawn, filled with plants:
Premium, Mrs. J. A. Vincent, Springfield 4 00

Palm:
Premium, Mrs. C. A. Gehrman, Springfield 4 00

Awarding Committee—James Crow, Crystal Lake; Albert S. Warner, Rockford; H. G. Savage, Chicago.

LOT 97—CUT FLOWERS.

[No Professional Florist allowed to compete.]

Collection of Cut Flowers:
First premium, Mrs. M. A. Hillis, Dixon $5 00
Second premium, Mrs. J. A. Vincent, Springfield 3 00

Collection of Asters:
First premium, Mrs. M. A. Hillis, Dixon 2 00

Collection of Balsams:
Premium, Miss Maude C. Hinsey, Pekin 2 00

Collection of Dahlias, named, 10 varieties:
First premium, Mrs. M. A. Hillis, Dixon 3 00
Second premium, Miss Maude C. Hinsey, Pekin 2 00

Collection of Dahlias, Bouquet or Pompone:
First premium, Mrs. M. A. Hillis, Dixon 2 00
Second premium, C. G. Bœhme, Freeport 1 00

Collection of Everlastings:
First premium, Miss Maude C. Hinsey, Pekin 2 00
Second premium, Mrs. Amos Grubb, Springfield 1 00

Collection of Gladiolii:
First premium, Mrs. M. A. Hillis, Dixon 3 00

Collection of Japan Pinks:
First premium, Mrs. R. L. Pirkins, Woodside 3 00
Second premium, Mrs. M. A. Hillis, Dixon 2 00

Collection of Single Petunias:
First premium, Miss Maude C. Hinsey, Pekin 3 00
Second premium, Mrs. M. A. Hillis, Dixon 2 00

Collection of Double Petunias:
First premium, C. G. Bœhme, Freeport 3 00

Collection of Pansies:
First premium, Mrs. E. Bauscher, Freeport 2 00
Second premium, Mrs. M. A. Hillis, Dixon 1 00

Collection of Phlox-Drummondi:
First premium, Mrs. J. A. Vincent, Springfield 3 00
Second premium, Mrs. M. A. Hillis, Dixon 2 00

Collection of Tube Roses:
First premium, Mrs. M. A. Hillis, Dixon 2 00
Second premium, Mrs. J. A. Vincent, Springfield 1 00

Collection of Verbenas:
First premium, Miss Maude C. Hinsey, Pekin 2 00
Second premium, Mrs. J. A. Vincent, Springfield 1 00

Double Zinnia:
First premium, Mrs. M. A. Hillis, Dixon 2 00
Second premium, C. G. Bœhme, Freeport 1 00

FLORAL DESIGNS, BOUQUETS, ETC.

Floral Design:
First premium, Mrs. W. E. Shutt, Springfield $15 00
Second premium, Miss Florence Peck, Jacksonville 10 00

Floral Design of Dahlias:
Premium, Miss Maude C. Hinsey, Pekin 3 00

Floral Wreath:
Premium, Miss Florence Peck, Jacksonville 3 00

Pair Flat Hand Bouquets:
First premium, Mrs. M. A. Hilles, Dixon 2 00

Pair Round Hand Bouquets:
First premium, Miss Maude C. Hinsey, Pekin 2 00
Second premium, Mrs. E. Bauscher, Freeport 1 00

Pair Grass Bouquets:
First premium, Miss Florence Peck, Jacksonville 2 00
Second premium, Mrs. H. B. Barnard, Pekin 1 00

Basket of Cut Flowers:
First premium, Miss Florence Peck, Jacksonville 3 00
Second premium, Miss Maude C. Hinsey, Pekin 2 00

Winter Basket of Flowers, Leaves and Mosses:
First premium, Miss Maude C. Hinsey, Pekin 3 00
Second premium, Miss Florence Peck, Jacksonville 2 00

Pair Winter Bouquets:
First premium, Miss Maude C. Hinsey, Pekin 3 00
Second premium, Miss Florence Peck, Jacksonville 2 00

Floral Heart:
Premium, Miss Maude C. Hinsey, Pekin 3 00

Floral Star:
Premium, Miss Maude C. Hinsey, Pekin 3 00

Awarding Committee—James Crow, Crystal Lake; H. G. Savage, Chicago; Albert S. Warner, Rockford.

CLASS H—HORTICULTURE, ETC.

Section 2—Fruits, Jellies, Pickles, etc.

B. PULLEN, *Superintendent.*

LOT 98—HOME GROWN FRUITS.

For Professional Fruit Growers or Orchardists.

Collection of Fruits by a Horticultural Society, grown within the Territorial limits of the Society exhibiting:
First premium, Horticultural Society, Warsaw $50 00
Second premium, Horticultural Society, Champaign 25 00

Collection of Apples (Crabs excepted)—25 varieties:
First premium, A. C. Hammond, Warsaw 25 00
Second premium, Jabez Capps & Son, Mt. Pulaski 15 00

Collection of Apples for Southern Illinois, value for market purposes considered—15 varieties:
First premium, J. O. Cline, Effingham 15 00
Second premium, H. G. Spraker, Effingham 10 00

Collection of Apples for Central Illinois, value for market purposes considered—15 varieties:
First premium, A. C. Hammond, Warsaw 15 00
Second premium, Jabez Capps & Son, Mt. Pulaski 10 00

Siberian Crab Apples—5 varieties:
First premium, H. M. Dunlap, Champaign 3 00

Collection of Pears, the product of Illinois—6 varieties:
First premium, A. L. Lightfoot, Beardstown 6 00
Second premium, H. M. Dunlap, Champaign 4 00

Collection of Autumn Pears, the product of Illinois—5 varieties:
First premium, A. L. Lightfoot, Beardstown $5 00
Second premium, H. M. Dunlap, Champaign 3 00

Collection of Winter Pears, the product of Illinois—3 varieties:
First premium, H. M. Dunlap, Champaign 5 00
Second premium, A. L. Lightfoot, Beardstown 3 00

Collection of Seedling Peaches:
First premium, Mrs. Elisha Primm, Athens 4 00
Second premium, Mrs. J. Beeler, Springfield 2 00

Twelve Quinces:
First premium, J. C. Bishop, Petersburg 2 00
Second premium, J. O. Cline, Effingham 1 00

Display of Grapes, correctly named:
First premium, A. L. Lightfoot, Beardstown 10 00
Second premium, H. M. Dunlap, Champaign 5 00

Early Grapes—3 bunches:
First premium, H. M. Dunlap, Champaign 4 00
Second premium, A. L. Lightfoot, Beardstown 2 00

Late Grapes, for table use—3 varieties, 3 bunches each:
First premium, H. M. Dunlap, Champaign 4 00
Second premium, A. L. Lightfoot, Beardstown 2 00

Wine Grapes—3 varieties, 3 bunches each:
First premium, H. M. Dunlap, Champaign 3 00
Second premium, A. L. Lightfoot, Beardstown 2 00

Single Variety of New Grapes—2 bunches:
Premium, A. L. Lightfoot, Beardstown 3 00

Attractive and artistically arranged display of Fruits:
First premium, H. M. Dunlap, Champaign 10 00
Second premium, Chas. Warner, Springfield 5 00

Awarding Committee—D. P. Keller, Macon; Daniel McFarland, McLean; J. W. C. Gray, Mackville.

LOT 99—HOME-GROWN FRUITS—BY AMATEUR.

Collection of Apples, by farmer or amateur—10 varieties:
First premium, Frank Baker, Champaign $8 00
Second premium, Mrs. George Rhea, Camp Point 4 00

Collection of Apples, by farmer or amateur—6 varieties:
First premium, J. T. Johnson, Warsaw 5 00
Second premium, G. Lightfoot, Springfield 2 00

Collection of Pears, by farmer or amateur:
First premium, Frank Baker, Champaign 3 00
Second premium, A. L. Walker, Effingham 2 00

Collection of Peaches, by farmer or amateur:
First premium, Mrs. E. Furrow, Rochester 3 00
Second premium, Mrs. Geo. Rhea, Camp Point 2 00

Collection of Plums, by farmer or amateur:
First premium, Mrs. Geo. Rhea, Camp Point 3 00
Second premium, C. G. Bœhme, Freeport 2 00

Early Grapes—4 bunches:
First premium, Chas. Warner, Springfield 4 00
Second premium, W. H. Lightfoot, Springfield 2 00

Late Grapes, for table use—3 varieties, 3 bunches each:
First premium, W. H. Lightfoot, Springfield 4 00
Second premium, Frank Baker, Champaign 2 00

Wine Grapes—3 varieties, 3 bunches each:
First premium, Chas. Warner, Springfield 4 00
Second premium, W. H. Lightfoot, Springfield 2 00

Apples for Southern Illinois—8 varieties:
First premium, A. L. Walker, Effingham 8 00

Apples for Central Illinois—8 varieties:
First premium, J. T. Johnson, Warsaw 8 00
Second premium, Frank Baker, Champaign 4 00

Apples for Northern Illinois—8 varieties:
First premium, John Bauscher, Freeport 8 00

Display of Grapes:
First premium, Chas. Warner, Springfield $8 00
Second premium, W. H. Lightfoot, Springfield 4 00

Awarding Committee—L. C. Francis, Springfield; D. G. Kalb, Springfield; Seneca Wood, Springfield.

LOT 100—JELLIES, PRESERVES, PICKLES, ETC.

Six or more varieties of Fruit Jellies, including Apple, Plum, Quince, Crab Apple, Peach and Cherry:
First premium, Mrs. Cellie Keene, Atlanta $6 00
Second premium, Mrs. A. N. McDonald, Jacksonville 3 00

Six or more varieties of Small Fruit Jellies, including Currant, Grape, Blackberry, Raspberry, Strawberry, Gooseb rry:
First premium, G. E. McDonald, Jacksonville 6 00
Second premium, Mrs. Cellie Keene, Atlanta 3 00

Display of Jellies, not including samples entered for other premiums:
First premium, Mrs. Kate Heslip, Virginia 12 00
Second premium, Mrs. J. F. Robinson, Atlanta 6 00

Six or more varieties of Canned Fruit, including Apples, Plums, Quinces, Crab Apples, Peaches, Cherries and Tomatoes:
First premium, Mrs. P. D. Stagg, Carmi 10 00
Second premium, Mrs. Cellie Keene, Atlanta 5 00

Six or more varieties of Canned Small Fruits, including Currants, Grapes, Blackberries, Raspberries, Strawberries and Gooseberries:
First premium, Mrs. Cellie Keen, Atlanta 10 00
Second premium, Mrs. J. D. Mehrtens, Atlanta 5 00

Display of Canned Fruits, not including samples entered for other premiums:
First p emium, Mrs. W. F. Taggart, Decatur 20 00
Second premium, Mrs. Cellie Keene, Atlanta 10 00

Ten or more varieties of Preserved Fruits, including Crab Apples, Quinces, Grapes, Pears, Strawberries, Cherries and Tomatoes:
First premium, Mrs. Cellie Keene, Atlanta 10 00
Second premium, Mrs. Kate Heslip, Virginia 5 00

Six or more varieties of Fruit Butter, including Apple, Peach, Pear, Plum, Quince and Crab Apple:
First premium, Mrs. J. M. Brewer, Rushville 10 00
Second premium, Miss Victoria Fisher, Springfield 5 00

Six or more varieties of Fruit Jam, including Blackberry, Currant, Raspberry, Strawberry, Grape and Gooseberry:
First premium, Mrs. J. F. Robinson, Atlanta 10 00
Second premium, Mrs. Cellie Keene, Atlanta 5 00

Ten or more varieties of Sour Pickles, including Cucumber, Cabbage, Onion, Mixed Pickles, Piccalilli, Chow Chow, Gherkins, Peaches, Mangoes, and Cherries:
First premium, Mrs. W. E. Shutt, Springfield $10 00
Second premium, Mrs. Cellie Keene, Atlanta 5 00

Five or more varieties of Sauces, Relishes, Catsups, etc., including Tomato, Walnut and Cucumber Catsups, Cider Vinegar and Table Sauce:
First premium, Mrs. W. E. Shutt, Springfield 10 00
Second premium, Mrs. Cellie Keene, Atlanta 5 00

Awarding Committee—Mrs. J. A. Nafew, Springfield; Mrs. O. B. Nichols, Carlyle; Mrs. M. H. Wilson, Springfield.

CLASS I—FINE AND LIBERAL ARTS.

JOHN P. REYNOLDS, *Superintendent.*

LOT 101—FINE ARTS.

Specimen of Sculpture:
Premium, Wm. Braddock, Springfield ..... Silver medal

Portrait in Oil:
Premium, Mrs. J. W. McClure, Pawnee ..... Silver medal

Original Oil Painting of an Illinois landscape:
First premium, Miss Mary Lewis, Springfield ..... Diploma and $30 00
Second premium, Mrs. S. N. Alexander, Monticello 15 00

Fruit Painting, in oil:
Premium, Mrs. Isaac R. Diller, Springfield.....Diploma

Collection of 5 Oil Paintings:
Premium, Miss Annie Bourne, Springfield.....Silver medal

Specimen Bird Painting, in water colors:
Premium, Miss Mary Lewis, Springfield.....Silver medal

Portrait in Pastile:
Premium, Dennis Williams, Springfield.....Diploma

Portrait in Crayon:
Premium, Dennis Williams, Springfield.....Diploma

Crayon Drawing, other than portrait:
Premium, Dennis Williams, Springfield.....Silver medal

Plain Photograph:
Premium, J. A. W. Pittman, Springfield.....Diploma

Photograph, in India Ink:
Premium, J. A. W. Pittman, Springfield.....Silver medal

Photograph, in water colors:
Premium, J. A. W. Pittman, Springfield.....Silver medal

Copied Work, touched in India ink:
Premium, J. A. W. Pittman, Springfield.....Silver medal

Copied Work, touched in water colors:
Premium, J. A. W. Pittman, Springfield.....Diploma

Collection of 12 Stereoscopic Views:
Premium, J. A. W. Pittman, Springfield.....Diploma

Awarding Committee—A. N. Carpenter, Galesburg; Mrs. W. M. Buffington, Monmouth; B. G. Smith, Chatham.

LOT 102—MUSICAL INSTRUMENTS.

Violin:
Premium, Thos. Peaker, Springfield.....Silver medal

Reed Organ:
Premium, Lyon & Healy, Chicago.....Silver medal

Boudoir Piano:
Premium, Lyon & Healy, Chicago.....Silver medal

Square Piano:
Premium, Lyon & Healy, Chicago.....Diploma

Awarding Committee—A. N. Carpenter, Galesburg; Mrs. W. M. Buffington, Monmouth; B. G. Smith, Chatham.

LOT 103—PRINTING, ENGRAVING, ARCHITECTURAL AND MECHANICAL DRAWING, AND DECORATIVE ART DESIGNING.

Collection of 5 Chromos:
Premium, P. F. Kimble, Springfield.....Silver medal

Collection of Pencil Drawings:
Premium, Mrs. Jas. A. Burton, Springfield.....Silver medal

Drawings, Plans and Specifications for School-house, having reference to heating and ventilation:
Premium, S. A. Bullard, Springfield.....Silver medal

Exhibit of Business Penmanship, from a Commercial College:
Premium, Business College, Jacksonville.....Silver medal

Exhibit Ornamental Penmanship, from a Commercial College:
Premium, Business College, Jacksonville.....Silver medal

Pen Drawing:
Premium, Business College, Jacksonville.....Silver medal

Pen Lettering:
Premium, Business College, Jacksonville.....Silver medal

Course in General Book-keeping:
Premium, Business College, Springfield.....Silver medal

Course in Farm Book-keeping:
Premium, Business College, Jacksonville.....Diploma

Awarding Committee—Miss Mary J. Sell, Springfield: Isaac A. Tewksberry, Springfield; Charles H. Deere, Moline.

LOT 104—WAX, FEATHER, HAIR WORK, ETC.

Manufactured Sheet Wax:
Premium, Mrs. L. E. Rockwell, Quincy .....Silver medal

White Wax-work:
First premium, Mrs. A. J. Kane, Springfield $2 00
Second premium, Mrs. H. B. Barnard, Pekin 1 00

Colored Wax-work:
First premium, Miss Jennie Kemp, Williamsville 2 00
Second premium, Mrs. H. B. Barnard, Pekin 1 00

Work in Feathers:
First premium, Miss Lizzie Schamel, Springfield..... 2 00
Second premium, N. E. Kilgore, Sherman..... 1 00

Work in Hair:
First premium, Miss H. G. Griffith, Springfield..... 2 00
Second premium, Mrs. Amanda Moore, Springfield..... 1 00

Shell-work:
First premium, Mrs. Martha Graville, Springfield..... 2 00
Second premium, Mrs. Eugenia Hunt, Paris..... 1 00

Fancy Worsted Bouquet:
First premium, Mrs. Amanda Moore, Springfield..... 2 00
Second premium, Miss Jennie Kemp, Williamsville..... 1 00

Leather-work:
First premium, Mrs. Amanda Moore, Springfield..... 2 00
Second premium, Mrs. Amanda Moore, Springfield..... 1 00

Bead-work:
First premium, Miss Jennie Taggart, Decatur..... 2 00
Second premium, Mrs. Amanda Moore, Springfield..... 1 00

Mosaic or Papier-Maché Work:
First premium, Mrs. W. E. Shutt, Springfield..... 2 00
Second premium, Mrs. Eloise Griffith, Springfield 1 00

Imitation of Fruits:
Frst premium, Mrs. W. E. Shutt, Springfield .....Silver medal

Agricultural Wreath:
First premium, Miss Lou J. Bell, Berry $2 00
Second premium, Mrs. Amanda Moore, Springfield..... 1 00

Landscape in Moss:
First premium, Mrs. A. J. Kane, Springfield.....Silver medal

Shell-work Wreath:
First premium, Mrs. H. B. Barnard, Pekin $2 00
Second premium, Mrs. A. J. Kane, Springfield..... 1 00

Ornamental Work with Indelible Ornamenting Fluid:
First premium, Mrs. W. E. Shutt, Springfield 2 00
Second premium, Mrs. L. Beckwith, Delavan 1 00

Collection of articles, above enumerated, shown by one exhibiter:
Premium, Mrs. H. B. Barnard, Pekin 10 00

Awarding Committee—Mrs. J. A. Nafew, Springfield; Mrs. W. M. Buffington, Monmouth; Mrs. M. H. Wilson, Springfield.

CLASS K—TEXTILE FABRICS.

E. H. BISHOP, *Superintendent.*

LOT 105—MILL FABRICS, ETC.

MANUFACTURED GOODS.

Display of Fur Robes:
Premium. C. Wolf, Springfield.....Diploma

Awarding Committee—J. J. Bergen, Virginia; Mrs. M. E. Paine, Fancy Prairie; Mrs. J. E. Scripps, Rushville.

LOT 106—HOUSEHOLD FABRICS—ALL WOOL.

Pair Blankets:	
First premium, Mrs. P. D. Stagg, Carmi	$5 00
Second premium, Mrs. P. D. Stagg, Carmi	3 00
Display of Yarns:	
First premium, Mrs. J. Nearing, Kenney	3 00
Second premium, M. F. Serrott, Rushville	2 00
Pair Ladies' Stockings:	
First premium, Mrs. R. L. Perkins, Woodside	3 00
Second premium, Miss Annie Miller, Quincy	2 00
Pair Men's Socks:	
First premium, Miss Cellie Keene, Atlanta	00
Second premium, Mrs. P. D. Stagg, Carmi	2 00
Pair Mittens:	
First premium, Miss Jane Bates Richland	3 00
Second premium, Mrs. M. A. Hilles, Dixon	2 00

MIXED WOOL AND COTTON.

Coverlet:	
First premium, Mrs. P. D. Stagg, Carmi	5 00
Second premium, Mrs. Amanda Moore, Springfield	3 00
Ten yards Linsey:	
First premium, Mrs. J. Nearing, Kenney	4 00
Ten yards Carpet:	
First premium, Mrs. P. D. Stagg, Carmi	5 00
Second premium, Mrs. Elisha Primm, Athens	3 00
Ten yards Rag Carpet:	
First premium, M. F. Serrott, Rushville	5 00
Second premium, Miss Anna Miller, Quincy	3 00
Foot-mat, made of Wool:	
First premium, Mrs. E. D. Scott, Princeton	3 00
Second premium, Mrs. S. A. Downey, Atlanta	2 00
Carpet Warp, spun by the exhibiter:	
First premium, Mrs. J. Nearing, Kenney	2 00
Parlor Rug, Raised Wool work:	
First premium, Mrs. E. D. Scott, Princeton	3 00
Second premium, Mrs. J. Nearing, Kenney	2 00
Hearth Rug, Wool:	
First premium, Mrs. J. Nearing, Kenney	3 00
Second premium, Mrs. W. M. Buffington, Monmouth	2 00
Hearth Rug, Rags:	
First premium, Miss Maude C. Hinsey, Pekin	3 00
Second premium, Mrs. C. Hennick, Keokuk Junction	2 00
Carriage Mat:	
First premium, Mrs. Jennie Taggart, Decatur	3 00
Second premium, Mrs. E. D. Scott, Princeton	2 00

Awarding Committee—Mrs. J. C. Scripps, Rushville; Mrs. M. E. Paine, Fancy Prairie; Mrs. L. E. Rockwell, Quincy.

LOT 107—HAND SEWING.

COMPRISING PLAIN GARMENTS.

Coarse Shirt, unbleached:	
First premium, Miss Maude C. Hinsey, Pekin	$3 00
Second premium, Mrs. E. L. Gillham, Merritt	2 00
Plain Night Dress:	
First premium, Mrs. J. Nearing, Kenney	3 00
Second premium, Mrs. W. M. Buffington, Monmouth	2 00
Plain Chemise:	
First premium, E. Talbott, Bradfordton	3 00
Second premium, Mrs. E. L. Gillham, Merritt	2 00
Calico Dress:	
First premium, Mrs. W. M. Buffington, Monmouth	3 00
Second premium, Miss Annie Miller, Quincy	2 00
Pair of Pants:	
First premium, Mrs. L. E. Rockwell, Quincy	3 00
Second premium, Mrs. W. M. Buffington, Monmouth	2 00
Vest:	
First premium, Mrs. M. A. Hilles, Dixon	3 00
Second premium, Mrs. L. E. Rockwell, Quincy	2 00
Boy's Suit:	
First premium, Mrs. W. M. Buffington, Monmouth	3 00
Second premium, Mrs. M. A. Hilles, Dixon	2 00
Darning and Repairing:	
First premium, Mrs. P. D. Stagg, Carmi	3 00
Second premium, Mrs. E. L. Gillham, Merritt	2 00
Kitchen Apron:	
First premium, Mrs. W. M. Buffington, Monmouth	2 00
Second premium, Mrs. J. F. Robinson, Atlanta	1 00

Awarding Committee—Mrs. J. E. Scripps, Rushville; Mrs. M. E. Paine, Fancy Prairie; J. J. Bergen, Virginia.

LOT 108—ORNAMENTAL NEEDLE-WORK.

Specimen Braiding:	
First premium, Miss J. Mabelle Ewing, Jacksonville	$4 00
Second premium, Mrs. E. L. Gillham, Merritt	2 00
Braided Pillow Case:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	3 00
Second premium, Miss M. R. Housekeeper, Beardstown	2 00
Hemstitching:	
First premium, Miss Lou Freeman, Springfield	4 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Silk Embroidery:	
First premium, Mrs. R. S. Briscoe, Kansas	4 00
Second premium, Miss Bettie Crapster, Shelbyville, Ky.	2 00
Worsted Embroidery:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	4 00
Second premium, Mrs. Jennie Taggart, Decatur	2 00
Cotton Embroidery:	
First premium, Mrs. J. Nearing, Kenney	2 00
Second premium, Mrs. Cellie Keene, Atlanta	1 00
Silver Embroidery:	
First premium, Mrs. Fred Fisher, Springfield	4 00
Second premium, Mrs. W. E. Shutt, Springfield	2 00
Gold Embroidery:	
First premium, Mrs. Fred Fisher, Springfield	4 00
Second premium, Mrs. W. E. Shutt, Springfield	2 00
Linen Embroidery:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Second premium, Miss Annie Miller, Quincy	1 00
Embroidered Cover for Chair:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	4 00
Second premium, Miss Kate Chatterton, Springfield	2 00

Chair Cover, Back and Seat—Wool:	
First premium, Mrs. J. Nearing, Kenney	$4 00
Second premium, Miss Maud C. Hinsey, Pekin	2 00
Cover for Ottoman:	
First premium, Mrs. Eugenia Hunt, Paris	4 00
Second premium, Miss Mary Lewis, Springfield	2 00
Sofa Pillow:	
First premium, Mrs. C. S. Jones, Williamsville	4 00
Second premium, Mrs. K. Harwood, Decatur	2 00
Chair Cushion:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	4 00
Second premium, Miss Annie Miller, Quincy	2 00
Carriage Afghan:	
First premium, Miss Flora Smith, Jacksonville	8 00
Second premium, Statera B. Nichols, Goodland, Ind.	4 00
Infant Afghan:	
First premium, Mrs. Eugenia Hunt, Paris	4 00
Second premium, Mrs. P. D. Stagg, Carmi	2 00
Infant Robe:	
First premium, Mrs. F. Roderick, Springfield	4 00
Second premium, Mrs. L. Beckwith, Delavan	2 00
Toilet Set, Embroidered:	
First premium, Mrs. C. Dorwin, Springfield	3 00
Second premium, Miss Carrie Cullom, Springfield	2 00
Infant Skirt, Embroidered:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	3 00
Second premium, Mrs. W. M. Buffington, Monmouth	2 00
Worsted Tapestry Work:	
First premium, Miss Bettie Crapster, Shelbyville, Ky.	3 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Japanese Tidy:	
First premium, Miss Kate Chatterton, Springfield	2 00
Second premium, Mrs. J. Nearing, Kenney	1 00
Embroidered Lace Tidy:	
First premium, Miss Lou Freeman, Springfield	3 00
Second premium, Mrs. M. A. Hilles, Dixon	2 00
Embroidered Silk Tidy:	
First premium, Miss M. R. Housekeeper, Beardstown	3 00
Second premium, Mrs. L. Beckwith, Delavan	2 00
Needle Book:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Second premium, Mrs. H. B. Barnard, Pekin	1 00
Worsted Tapestry Picture:	
First premium, Mrs. L. M. Thomas, Terre Haute, Ind.	3 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Bead Embroidery:	
First premium, Mrs. Wm. Hanna, Keokuk Junction	4 00
Second premium, Miss Ella Miner, Springfield	2 00
Stamping for Embroidery:	
First premium, Mrs. J. F. Robinson, Atlanta	2 00
Second premium, Miss H. G. Griffith, Springfield	1 00
Guipure Lace:	
First premium, Miss Maude C. Hinsey, Pekin	2 00
Second premium, Mrs. D. G. Council, Springfield	1 00
Embroidered Pillow Case:	
First premium, Mrs. Cellie Keene, Atlanta	3 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind.	2 00
Chenille Embroidery:	
First premium, Miss Annie Miller, Quincy	2 00
Second premium, Mrs. L. E. Rockwell, Quincy	2 00
Braided Shams:	
First premium, Mrs. J. Nearing, Kenney	2 00
Second premium, Mrs. L. E. Rockwell, Quincy	1 00

WORK DONE ON MACHINE.

Embroidery:	
First premium, Mrs. J. F. Robinson, Atlanta	$3 00
Tucking:	
First premium, Mrs. L. E. Rockwell, Quincy	2 00
Second premium, Mrs. J. F. Robinson, Atlanta	1 00
Braiding:	
First premium, Mrs. J. F. Robinson, Atlanta	2 00
Second premium, Mrs. J. F. Robinson, Atlanta	1 00
Quilting:	
First premium, Mrs. L. E. Rockwell, Quincy	2 00
Second premium, Mrs. P. D. Stagg, Carmi	1 00

Awarding Committee—Mrs. S. M. Elkin, Eureka; Mrs. A. E. Trates, Canton; Mrs. S. R. Hinkle, Canton.

LOT 109—FANCY WORK.

Lace Work:	
First premium, Mrs. Fred. Fisher, Springfield	$3 00
Second premium, Mrs. Maude C. Hinsey, Pekin	2 00
Drawing on Canvas:	
First premium, Mrs. W. E. Shutt, Springfield	3 00
Second premium, Miss Eloise Griffith, Springfield	2 00
Lamp Mat:	
First premium, Mrs. R. L. Pirkins, Woodside	2 00
Second premium, Mrs. Mary Wyatt, Franklin	1 00
Watch Case:	
First premium, Mrs. P. D. Stagg, Carmi	2 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind	1 00
Slipper Case:	
First premium, Mrs. J. A. Vincent, Springfield	2 00
Second premium, Mrs. J. Nearing, Kenney	1 00
Card Receiver:	
First premium, Miss Eloise Griffith, Springfield	2 00
Second premium, Mrs. J. Nearing, Kenney	1 00
Needle Case:	
First premium, Miss Katie Wetterer, Springfield	2 00
Second premium, Mrs. Eloise Griffith, Springfield	1 00
Comb Case:	
First premium, Mrs. Eloise Griffith, Springfield	2 00
Second premium, Mrs. H. B. Barnard, Pekin	1 00
Tidy in Wool:	
First premium, Mrs. P. D. Stagg, Carmi	3 00
Second premium, Mrs. W. M. Buffington, Monmouth	2 00
Tidy in Cotton:	
First premium, Miss Bettie Crapster, Shelbyville, Ky	3 00
Second premium, Mrs. H. L. Bush, Downer's Grove	2 00
Crochet Work in Worsted:	
First premium, Mrs. Jennie Taggart, Decatur	2 00
Second premium, Miss Maude C. Hinsey, Pekin	1 00
Crochet Work in Cotton:	
First premium, Miss Bettie Crapster, Shelbyville, Ky	2 00
Second premium, Mrs. L. E. Rockwell, Quincy	1 00
Crochet Work in Linen:	
First premium, Mrs. J. Nearing, Kenney	2 00
Second premium, Miss Maude C. Hinsey, Pekin	1 00
Crochet Work in Silk:	
First premium, Mrs. W. M. Buffington, Monmouth	2 00
Second premium, Miss Maude C. Hinsey, Pekin	1 00
Sample Netting:	
First premium, Miss Maude C. Hinsey, Pekin	2 00
Second premium, Mrs. M. A. Hilles, Dixon	1 00
Pin Cushion:	
First premium, Miss Kate Chatterton, Springfield	2 00
Second premium, Miss Emma Burkhardt, Springfield	1 00

Toilet Cushion:
First premium, Miss Florence Peck, Jacksonville $2 00
Second premium, Mrs. Sarah Ferguson, Springfield 1 00

Work Basket:
First premium, Mrs. Thomas S. Neal, Quincy 2 00
Second premium, Miss Maude C. Hinsey, Pekin 1 00

Infant Basket:
First premium, Mrs. W. E. Shutt, Springfield 2 00

Rag Basket:
First premium, Mrs. Sarah Ferguson, Springfield 2 00
Second premium, Miss Lizzie Schamel, Springfield 1 00

Card Basket:
First premium, Mrs. H. B. Barnard, Pekin 2 00
Second premium, Mrs. Thomas S. Neal, Quincy 1 00

String Basket:
First premium, Miss Maude C. Hinsey, Pekin 2 00
Second premium, Mrs. L. C. Stewart, Jacksonville 1 00

Scrap Basket:
First premium, Mrs. J. F. Robinson, Atlanta 2 00
Second premium, Miss Maude C. Hinsey, Pekin 1 00

Wash-Stand Set:
First premium, Mrs. P. D. Stagg, Carmi 2 00
Second premium, Miss Mary Wyatt, Franklin 1 00

Air Castle:
First premium, Mrs. Amanda Moore, Springfield 2 00
Second premium, Miss Lizzie Schamel, Springfield 1 00

Awarding Committee—Mrs. Ann Greenwood, Springfield: Mrs. J. P. Davis, Shelbyville; Mrs. Henry Cline, Cantrall.

LOT 110—NEEDLE-WORK, ETC.

BY GIRL UNDER 13 YEARS OF AGE.

Plain Sewing:
First premium, Carrie Nance, Petersburg $2 00
Second premium, Blanche Buffington, Monmouth 1 00

Fine Shirt, unwashed:
First premium, Lou Keene, Atlanta 2 00
Second premium, M. A. Stewart, Jacksonville 1 00

Coarse Shirt, unbleached:
First premium, Elva A. Nearing 2 00
Second premium, Iva E. Robinson, Atlanta 1 00

Plain Chemise:
First premium, Elva A. Nearing, Kenney 2 00
Second premium, Lou Keene, Atlanta 1 00

Hand-made Calico Dress:
First premium, Annie Stagg, Carmi 2 00
Second premium, Carrie Nance, Petersburg 1 00

Patch-work Quilt:
First premium, M. A. Stewart, Jacksonville 2 00
Second premium, Glodie Barnard, Pekin 1 00

Darning and Repairing:
First premium, Lou Keene, Atlanta 2 00
Second premium, Glodie Barnard, Pekin 1 00

Braiding:
First premium, Elva A. Nearing, Kenney 2 00
Second premium, Lou Keene, Atlanta 1 00

Foot-mat, made of Rags:
First premium, Blanche Buffington, Monmouth 2 00

FANCY WORK.

Tidy in Wool:
First premium, Florence Neal, Petersburg $2 00
Second premium, Elva A. Nearing, Kenney 2 00

Tidy in Cotton:
First premium, Elva A. Nearing, Kenney 2 00
Second premium, Lizzie Palmer, Springfield 1 00

Fancy Netting:
First premium, Janey S. Taylor, Jacksonville 2 00
Second premium, Bettie Crapster, Shelbyville, Ky 1 00

Tatting:
First premium, Lou Keene, Atlanta 2 00
Second premium, Elva A. Nearing, Kenney 1 00

Silk Embroidery:
First premium, Florence Neal, Quincy 2 00
Second premium, Blanche Buffington, Monmouth 1 00

Cotton Embroidery:
First premium, Elva A. Nearing, Kenney 2 00
Second premium, Lou Keen, Atlanta 1 00

Crochet W[illegible]
First prem[illegible]n, Florence Neal, Quincy 2 00
Second pren[illegible]n, Lou Keene, Atlanta 1 00

Cardboard Work:
First premium, Ollie Council, Springfield 2 00
Second premium, Dora Ritter, Springfield 1 00

Lamp Mat:
[illegible]irst premium, Iva E. Robinson, Atlanta 2 00
[illegible]econd premium, Ruby Hilles, Dixon 1 00

Toilet Set, embroidered
First premium, Blanche Buffington, Monmouth 2 00
Second premium, Florence Neal, Quincy 1 00

Needle Case:
First premium, M. A. Stewart, Jacksonville 3 00
Second premium, Glodie Barnard, Pekin 1 00

Comb Case:
First premium, Glodie Barnard, Pekin 2 00
Second premium, Florence Neal, Quincy 1 00

Button String:
First premium, G. E. McDonald, Jacksonville 2 00
Second premium, C. L. Justice, Springfield 1 00

KNITTING WORK.

Pair Men's Socks:
First premium, Lou Keene, Atlanta 2 00
Second premium, Blanche Buffington, Monmouth 1 00

Pair Ladies Stockings:
First premium, Ruby Hilles, Dixon 2 00
Second premium, Anna Stagg, Carmi 1 00

Pair Mittens:
First premium, Florence Neal, Quincy 2 00
Second premium, Glodie Barnard, Pekin 1 00

Pair Gloves:
First premium, Lou Keene, Atlanta 2 00

Scarf:
First premium, M. A. Stewart, Jacksonville 2 00
Second premium, Annie L. Stagg, Carmi 1 00

Hearth Rug:
First premium, Cordia Burkhardt, Springfield 2 00
Second premium, Cordia Burkhardt, Springfield 1 00

Awarding Committee—Mrs. G. R. King, Jerseyville; Mrs. S. M. Moore, Polo; Mrs. Bettie Crapster, Shelbyville, Ky.

LOT 111—QUILTS AND NEEDLE-WORK.

Patch-work Calico Quilt:
First premium, Mrs. P. R. Wilhelm, Springfield $4 00
Second premium, A. L. Lightfoot, Beardstown 2 00

Patch work Silk Quilt:
First premium, Mrs Eugenia Hunt, Paris 8 00
Second premium, Mrs. W. M. Buffington, Monmouth 4 00

White Quilt, Solid on Muslin:
First premium, Mrs. P. D. Stagg, Carmi 4 00
Second premium, Mrs. J. Nearing, Kenney 2 00

Worsted Quilt:
First premium, Mrs. P. D. Stagg, Carmi 4 00
Second premium, Mrs. L. M. Thomas, Terre Haute, Ind 2 00

Crochet Counterpane:
First premium, Mrs. J. Nearing, Kenney 4 00
Second premium, Mrs. W. M. Buffington, Monmouth 2 00

Knit Counterpane:
First premium, Miss Lucy Coleman, Springfield 4 00
Second premium, Mrs. P. D. Stagg, Carmi 2 00

Fine Night Dress:
First premium, Mrs. L. M. Thomas, Terre Haute, Ind 3 00
Second premium, Miss Maude C. Hinsey, Pekin 2 00

Fine Skirt:
First premium, Mrs. P. D. Stagg, Carmi 3 00
Second premium, Misses A. and V. Harnsberger, Pleasant Plains 2 00

Fine Chemise:
First premium, Mrs. L. M. Thomas, Terre Haute, Ind 3 00
Second premium, Miss Bettie Crapster, Shelbyville, Ky 2 00

Awarding Committee—Mrs. G. R. King, Jerseyville; Mrs. S. M. Moore, Polo; Mrs. W. C Garrard, Lawrenceville.

CLASS L—NATURAL HISTORY.

JOHN P. REYNOLDS, *Superintendent.*

LOT 112—TAXIDERMY, MINERALOGY, AND CONCHOLOGY.

Collection of Minerals and Fossils:
First premium, Mrs. W. E. Shutt, Springfield $50 00
Second premium, Mrs. A. J. Kane, Springfield 20 00

Collection of Illinois Birds and Mammals, not less than 50 species, shown by the Taxidermist:
First premium, Clark D. W. Brown, Aurora 40 00
Second premium, Horace A. Kline, Polo 20 00

Collection, illustrating the Conchology of Illinois, not less than 100 species:
First premium, Mrs. W. E. Shutt, Springfield 20 00
Second premium, Miss Maggie Shutt, Springfield 10 00

Awarding Committee—A. H. Worthen, Springfield; B. G. Smith, Chatham; A. N. Carpenter, Galesburg.

LOT 113—ENTOMOLOGY, ETC.

Collection of Insects:
First premium, Willard N. Braddock, Springfield $30 00
Second premium, William Braddock, Springfield 15 00

Collection of the Woods of Illinois, 75 varieties:
First premium, Albert S. Warner, Rockford 20 00
Second premium, Mrs. W. E. Shutt, Springfield 10 00

Awarding Committee—A. H. Worthen, Springfield; B. G. Smith, Chatham; A. N. Carpenter, Galesburg.

CLASS M—SPEED.

D. B. GILLHAM, *Superintendent.*

LOT 114—SPEED RINGS.

Trotting Race—Purse $200 (to harness for horses that have not beaten 2:40):
First premium, G. W. Breden, Carlinville $100 00
Black mare, "Black Bess."
Second premium, C. H. Doss, Pitsfield 80 00
Stallion, "Daniel Allen."
Third premium, P. H. Dorsey, Bunker Hill 20 00
"Little Joker," Black, 4 years old; sire, Ruby Gold Dust; dam, Alice Carnele, by Vermont Morgan.

Trotting Race—Purse $200 (to harness for horses that have not beaten 2:30):
First premium, Chas. M. Harvey, Bunker Hill 100 00
Brown Gelding, "Ivan" ("Prairie Boy.")
Second premium, Chas. H. Voorhies, Jerseyville 80 00
Black mare, "Belle Brown."
Third premium, P. H. Dorsey, Bunker Hill 20 00
Bay gelding, "W. H. Holly," sire, "Chickamauga;" dam, "Mambrino" mare.

Running Race—Purse $200 (mile and repeat—open to all ages):
First premium, R. H. Smith, Pontiac 100 00
"Judge Thurman"—Bay, sire, "Breckenridge;" dam, "My Lady."
Second premium, Dan DeCamp, Edinburg 80 00
"Eloise;" sire, "Barney Williams;" dam, "Lizzie Trigg."

Trotting Race—Purse $200 (to harness for horses that have not beaten 3 minutes):
First premium, Dilley & Co., Mahomet 100 00
Black stallion, "Pimoleon"; sire, "Pimoleon;" dam, "Flora Bell."
Second premium, Jas. McKean, Bradford 80 00
"Lulu Mac."
Third premium, S. C. Wagener, Pana 20 00
Chestnut stallion, "Little Mac," 7 years old; sire, "Henry Clay Jr.," by "Andy Johnson;" dam, "Messenger" mare.

Trotting Race—Purse $300 (free for all, trot to harness):
First premium, Chas. M. Harvey, Bunker Hill 175 00
Brown gelding, "Ivan."
Second premium, C. H. Doss, Pittsfield 95 00
Stallion, "Daniel Allen."
Third premium, P. H. Dorsey, Bunker Hill 30 00
Bay gelding, "W. H. Holly."

Pacing Race—Purse $200 (to harness—free for all):
First premium, A. G. Epler, Virginia 100 00
"Midnight."
Second premium, H. B. Dorrance, Modena 80 00
"Dolly Varden;" Bay.
Third premium, E. C. McNand, Normal 20 00
Black mare, "Daisy."

Running Race—Purse $100 (for two-year-old colts, ½ mile dash):
First premium, J. M. Fanning, Franklin 50 00
Bay stallion "Barney Dale;" sire, Barney Williams.
Second premium, Chas. A. Keyes, Springfield 40 00
Chestnut colt "Flamen;" by Barney Williams; dam, Victoria, by Imp. Young Barnton.
Third premium, Jno. A. McClernand, Springfield 10 00
Bay colt, "Lincoln," by Zenith; dam, Bronze, by Marion.

Running Race—Purse, $200 (two-mile dash, open to all):
First premium,) an DeCamp, Edinburg 100 00
Bay filly, "Eloise."
Second premium, Dan DeCamp, Edinburg 80 00
Sorrel mare, "Nora D;" sire Mammon; dam, Crazy Jane, by Woodpecker.
Third premium, J. M. Fanning, Franklin 20 00
Bay stallion, "Barney Dale."

Trotting Race—Purse $200 (for three year old colts):
First premium, Caton & Jerrems, Joliet 100 00
"Jennie Cuyler."
Second premium, P. H. Dorsey, Bunker Hill 80 00
"Hattie Gold Dust;" sire, "Messenger Gold Dust."
Third premium, J. M. Fanning, Franklin 20 00
"Joan;" sire, "Strawn's Honesty."

Running Race—Purse $200 (for three year old colts, and under, single dash around track):
First premium, Phil Warren, Springfield $100 00
"Eloise."
Second premium, Wiley Buckles, Champaign 80 00
"Gen. Rowett;" sire, Imp. "Intruder;" dam, "Mamona."
Third premium, J. M. Fanning, Franklin 20 00
"Barney Dale."

Running Race—Stake Race (half mile dash—open to all):
First premium, Geo. Brock, Springfield 156 00
"Belle Springfield;" sire, "Marion."
Second premium, R. H. Smith, Pontiac 60 00
"Judge Thurman."
Third premium, J. M. Fanning, Franklin 24 00
Bay gelding, "Caleb;" sire, "Malloy;" dam, "Boston."

CLASS N—EDUCATION.

EMORY COBB, *Superintendent.*

LOT 115—HIGH SCHOOL EXHIBIT.

LANGUAGES.

German:
First premium, High School, Lake View ..... Diploma and $5 00
Second premium, High School, Springfield 3 00

Latin:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Springfield 3 00

Greek:
First premium, High School, Lake View ..... Diploma and 5 00

MATHEMATICS.

Algebra:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Pecatonica 3 00

Geometry:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Springfield 3 00

NATURAL SCIENCES.

Botany:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Belleville 3 00

Physiology:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Springfield 3 00

Natural Philosophy:
First premium, High School, Lake View ..... Diploma and 5 00
Second premium, High School, Springfield 3 00

SWEEPSTAKES.

High School Exhibit
First premium, High School, Lake View ..... Diploma and 10 00
Second premium, High School, Springfield 5 00

Awarding Committee—C. A. Pease, Springfield; E. J. James, Normal; S. A. Forbes, Normal.

LOT 116—GRADED SCHOOL EXHIBIT.

First year work:
First premium, Third Ward School, Springfield ..... Diploma and $5 00
Second premium, First Ward School, Springfield 3 00

Second year work:
First premium, Fourth Ward School, Springfield ..... Diploma and 5 00
Second premium, First Ward School, Springfield 3 00

Third year work:
First premium, Second Ward School, Springfield ..... Diploma and $5 00
Second premium, Fourth Ward School, Springfield 3 00

Fourth year work:
First premium, First Ward School, Springfield ..... Diploma and 5 00
Second premium, Third Ward School, Springfield 3 00

Fifth year work:
First premium, Second Ward School, Springfield ..... Diploma and 5 00
Second premium, First Ward School, Springfield 3 00

Sixth year work:
First premium, Second Ward School, Springfield ..... Diploma and 5 00
Second premium, Fourth Ward School, Springfield 3 00

Seventh year work:
First premium, Second Ward School, Springfield ..... Diploma and 5 00
Second premium, Public School, Belleville 3 00

Eighth year work:
First premium, Second Ward School, Springfield ..... Diploma and 5 00
Second premium, Public School, Belleville 3 00

SWEEPSTAKES.

Exhibit for each year, first to eighth, inclusive:
First premium, Second Ward School, Springfield ..... Diploma and $10 00
Second premium, Public School, Belleville 5 00
Third premium, First Ward School, Springfield 3 00

Awarding Committee—John Trainer, Decatur; Frank V. Rafter, Springfield; F. W. Crouch, Carlinville.

LOT 117—COUNTRY SCHOOL EXHIBIT.

Spelling:
First premium, Dist. No. 5, Logan Twp., Peoria Co. ..... Diploma and $5 00
Second premium, Dist. No. 5, Medina Twp., Peoria Co. 3 00

Writing:
First premium, Dist. No. 1, Richwoods Twp., Peoria Co. ..... Diploma and 5 00
Second premium, Dist. No. 2, Twp. 35, Will Co. 3 00

Arithmetic:
First premium, Dist. No. 1, Kickapoo Twp., Peoria Co. ..... Diploma and 5 00
Second premium, Dist. No. 2, Reed Twp., Will Co. 3 00

Geography:
First premium, Dist. No. 4, Galesburg Twp., Knox Co. ..... Diploma and 5 00
Second premium, Dist. No. 7, Twp. 28, Stephenson Co. 3 00

Language (English Grammar):
First premium, Dist. No. 3, Medina Twp., Peoria Co. ..... Diploma and 5 00
Second premium, Dist. No. 3, Cedar Twp., Knox Co. 3 00

United States History:
First premium, Dist. No. 7, Twp. 35, Will Co. ..... Diploma and 5 00
Second premium, Dist. No. 2, Twp. 35, Will Co. 3 00

Botany:
First premium, Dist. No. 4, Galesburg, Knox Co. ..... Diploma and 5 00

Natural Philosophy:
First premium, Dist. No. 3, Cedar Twp., Knox Co. ..... Diploma and 5 00

Zoölogy:
First premium, Dist. No. 8, Ontario Twp., Knox Co. ..... Diploma and 5 00

SWEEPSTAKES.

Country School Exhibit:
First premium, Dist. No. 4, Galesburg Twp., Knox Co. ..... Diploma and $10 00
Second premium, Dist. No. 7, Twp. 35, Will Co. 5 00
Third premium, Dist. No. 1, Richwoods Twp., Peoria Co. 3 00

To the County Superintendent of the county making the best exhibit of Country School Work, entered for the premiums offered:
Premium, J. F. Perry, Supt. Schools, Will Co. ..... Diploma

Awarding Committee—A. M. Brooks, Springfield; F. R. Feitshans, Springfield; A. J. Smith, Springfield.

LOT 118—SWEEPSTAKES FOR ALL PUBLIC SCHOOLS.

Set of five papers, one page each of writing, from as many pupils of the same school:

First premium, Second Ward School, Springfield	Diploma and	$15 00
Second premium, Public School, Carbondale		7 00

Set of five drawings, from as many pupils of the same school:

First premium, Public School, Belleville	Diploma and	15 00
Second premium, Third Ward School, Springfield		7 00

Awarding Committee—O. A. Pease, Springfield; E. J. James, Normal; S. A. Forbes, Normal.

MEETINGS DURING THE FAT STOCK SHOW.

EXPOSITION BUILDING, CHICAGO,
TUESDAY, November 16, 1880—10 o'clock A. M.

Board met on call of the President.

Present: President Scott, Vice-Presidents Ellsworth, Emery, Reynolds, Moore, Dysart, Vittum, Beaty, Voorhies, Bishop, Stookey and Landrigan.

The President stated that C. M. Culbertson, of Chicago, desired to appear before the Board and make some suggestion in reference to the selection and competency of committeemen.

On motion of Mr. Beaty,

Mr. Culbertson was invited to appear before the Board.

On being introduced,

Mr. Culbertson stated that he was deeply interested in the success of the Fat Stock Show, which would be creditable or otherwise, according to the qualifications of the judges employed, and that while he did not question the judgment of the Board in selecting the most competent practical butchers in these several districts, there might be developed some radical objections to some of the parties selected as expert judges, employed either for want of sufficient practical experience either as buyers of live fat cattle or slaughtering and cutting up the carcass on the block of the best quality of stock, intimate knowledge of each of these duties of a practical butcher being essential to insure competency; and he recommended that each of the judges in attendance be examined by the Board as to these qualifications.

Motion of Mr. Bishop carried,

That the thanks of the Board be extended to Mr. Culbertson for his suggestions.

Motion of Mr. Beaty carried,

That each committeeman be requested to subscribe to a statement, giving his name, nativity, residence, years of practical experience as a butcher, to-wit, his knowledge in buying, killing and cutting of the various breeds on exhibition, and whether prejudiced in favor of any of the pure breeds or their crosses to such an extent as to be biased in judgment as to the merits of the several breeds for the block, and if he had ever been engaged in the business of breeding any of the meat breeds of animals on exhibition.

On motion of Mr. Ellsworth,

Board adjourned, subject to call of the President.

EXPOSITION BUILDING, CHICAGO,
WEDNESDAY, November 17, 1880—10 o'clock A. M.

Board met on call of the President.

Present: President Scott, Vice-Presidents Ellsworth, Emery, Reynolds, Moore, Dysart, Cobb, Beaty, Smith, Voorhies, Stookey and Landrigan.

The following protest was received from T. L. Miller, of Beecher, Illinois:

PROTEST.

CHICAGO, ILLINOIS, November 16, 1880.

To the Honorable President and Members of the Illinois State Board of Agriculture:

GENTLEMEN:—I would respectfully protest against the awards made in Class A, Lot 5, for grades and crosses on two year old steers, as being grossly wrong and contrary to the merits and claims of the grade Hereford steers exhibited in this ring belonging to me. I believe that this is a case that is a proper one for the Board to review, and I would respectfully ask permission to come before the Board with witnesses to support the protest and the position I have taken.

Respectfully yours,

T. L. MILLER.

Personally appeared before me, John R. Floyd, Timothy L. Miller, and makes oath that the awards in Class A, Lot 5, on two year old steers, did him great injustice in that the awards were grossly unjust and contrary to the merits of the animals exhibited by him.
Subscribed and sworn to before me, at Chicago, this 16th day of November, A. D. 1880.

[SEAL.] JOHN P. FLOYD, *Notary Public.*

On motion of Mr. Dysart,

Mr. Miller was invited to come before the Board and state his case.

Mr. Miller stated that the committee had not considered the points of excellence of his steers, and that he could prove by experts that the award was not made according to merits.

Mr. Smith called attention to rules 8 and 21 in relation to the prerogatives, etc., of awarding committees, which reads as follows: "8. Protests against a person serving as a member of an awarding committee must be submitted to the Superintendent in writing, and give good and sufficient reasons therefor. 21. Decisions of awarding committees will be final, and no appeal will be considered except in case of fraud."

Mr. Miller stated that he did not protest on the ground of fraud and that he desired to withdraw the protest.

On motion of Mr. Smith,

The request was granted.

Mr. Dysart, Superintendent Class A—Cattle, called attention to the entry of the steer "Nichols," exhibited by J. H. Graves, of Chilesburg, Ky., in 1879, as a Shorthorn steer, and this year (1880) entered as a grade Shorthorn.

On motion of Mr. Cobb,

The following preamble and resolution, introduced by Mr. Reynolds, were adopted:

WHEREAS, The steer "Nichols," exhibited by J. H. Graves, of Chilesburg, Ky., is entered for Grand Sweepstakes premium, and pedigreed as a grade Shorthorn; and,
WHEREAS, The same steer was exhibited last year, at the Fat Stock Show, and awarded premium as a thoroughbred Shorthorn; therefore,
Resolved, That the said steer shall not be allowed to compete at this Show, until the premium taken by him in the Shorthorn Ring, in 1879, is returned to the Treasurer of this Board, and the owner of said steer shall satisfy this Board that the error in the entry of last year was not tainted with fraud.

On motion of Mr. Moore,

Mr. Graves was invited to appear before the Board and make a statement of facts concerning the breeding of the steer "Nichols."

J. W. Coleman, of Chilesburg, Ky., appeared before the Board, and stated that Mr. Graves had been called home, on account of sickness in his family, and that he was authorized to speak and act for Mr. Graves; and that he submitted for the consideration of the Board a communication for that gentleman, as follows:

To the Illinois State Board of Agriculture:

GENTLEMEN: I have the honor to submit the following pedigree of the steer "Nichols." furnished me by the late D. B. Nichols, the gentleman from whom said steer was purchased, in 1878.

This statement of breeding was believed to be correct, at time of making entry of said steer, in 1879. I have since that time received evidence that the steer was not a thoroughbred Shorthorn, and hereby tender the Board the premium received on said steer last year, in the Shorthorn Ring.

I respectfully request that the Board make a critical investigation of this matter, believing they will exonorate me from any intentional fraud or misrepresentation.

J. H. GRAVES.

PEDIGREE STEER NICHOLS.—This is to certify that I this day sold to J. H. Graves one thoroughbred 2-year old roan steer; out of a Seventeen cow and by a Young Mary bull.

This December 6, 1878.

(Signed) D. B. NICHOLS.

Mr. Reynolds introduced the following resolution, which was adopted, on motion of Mr. Beaty:

Resolved, That it is the sense of this Board that Mr. Graves, the owner of the steer "Nichols," was justified in making the entry of said steer, at the Fat Stock Show of 1879, as a thoroughbred 3-year old Shorthorn steer, upon the representation made by D. B. Nichols; and that as said Graves has returned to the Treasurer of this Board the premium now known to have been awarded to said steer on an erroneous pedigree, in 1879, he is entitled to compete on his entry, as made as a grade Shorthorn, in the Show now in progress.

On motion of Mr. Moore,

Board adjourned, subject to call of the President.

REPORT

OF THE

THIRD ANNUAL

FAT STOCK SHOW

HELD BY THE

ILLINOIS STATE BOARD OF AGRICULTURE,

IN THE

EXPOSITION BUILDING, CHICAGO,

NOVEMBER 15-20, 1880.

ILLINOIS

STATE BOARD OF AGRICULTURE

FOR 1879-80.

President.....J. R. SCOTT.....Champaign
Ex-President.....D. B. GILHAM.....Alton
Secretary.....S. D. FISHER.....Springfield
Treasurer.....JOHN W. BUNN.....Springfield

VICE-PRESIDENTS.

1st Dist.—	Lewis Ellsworth	Naperville	
2d "	H. D. Emery	Chicago	
3d "	John P. Reynolds	Chicago	
4th "	Geo. S. Haskell	Rockford	
5th "	J. L. Moore	Polo	
6th "	Saml. Dysart	Franklin Grove	
7th "	Charles Snoad	Joliet	
8th "	Emory Cobb	Kankakee	
9th "	D. W. Vittum, Jr.	Canton	
10th "	Saml. Douglas	Monmouth	
11th Dist.—	David E. Beaty	Jerseyville	
12th "	J. M. Epler	Virginia	
13th "	Wm. M. Smith	Lexington	
14th "	Wm. Voorhies, Jr.	Voorhies	
15th "	E. H. Bishop	Effingham	
16th "	B. Pullen	Centralia	
17th "	M. T. Stookey	Belleville	
18th "	Jas. M. Washburn	Carterville	
19th "	John Landrigan	Albion	

SUPERINTENDENTS OF DEPARTMENTS, ETC.

Class A—Cattle.....Mr. Dysart
Class B—Horses and Equestrianism.....Mr. Landrigan
Class C—Sheep.....Mr. Vittum
Class D—Swine.....Mr. Voorhies
Class E—Poultry.....Mr. Emery
Class F—Mechanics.....Messrs. Epler and Smith
Marshal of the Ring.....Mr. Beaty
General Superintendent.....Mr. Stookey
Superintendent of Forage and Stalls.....Mr. Moore
Superintendent of Press Department.....Mr. Emery

COMMITTEES.

Reception Committee.....Messrs. Scott, Gillham, Reynolds, Smith and Cobb
Auditing Committee.....Messrs. Ellsworth, Washburn and Snoad
Committee of Arrangements.....Messrs. Scott, Gillham, Reynolds, Beaty, Cobb, Dysart, Smith, Haskell, Vittum, Stookey and Fisher.
Committee on Printing.....Messrs. Scott, Moore, Reynolds and Fisher
Committee on Finance.....Messrs. Cobb, Stookey, Bishop, Smith and Beaty
Committee on Transportation....Messrs. Scott, Gillham, Haskell, Cobb, Smith and Fisher

EXHIBITERS.

CLASS A—CATTLE.

(The figures denote the entries of each exhibiter.)

SHORTHORNS—13 head.

Dun, R. Geo., Mechanicburg, Ohio 11
Gillett, J. D., Elkhart, Ill 2, 3, 4
Highmore, J. S., Rochester, Ill 5, 10
Sandusky, Wm., Catlin, Ill 1, 9
Sherman, John B., Chicago 6, 7, 8
Scott, W., Wyoming, Ill 12, 13

HEREFORDS—6 head.

Burleigh, G. S., Mechanicsville, Iowa 18
Miller, T. L., Beecher, Ill 14, 15, 16, 17, 19

DEVONS—5 head.

Bidwell, Thomas, Gurnee, Ill 22, 23
Ross, L. F., Avon, Ill 20, 21, 24

GRADES AND CROSSES—79 head.

Bassett, H. A., Jefferson, Ill 103
Burleigh, G. S., Mechanicsville, Iowa 84, 85
Cobb & Phillips, Kankakee, Ill 81, 82
Culbertson, C. M., Chicago, Ill 37, 38
Graves, J. H., Chilesburg, Ky 28, 29
Green, E. J., Valparaiso, Ind 34
Gillett, J. D., Elkhart, Ill 26, 27, 29, 30, 31, 32, 33, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 101, 102
Miller, T. L., Beecher, Ill 65, 66, 67, 68, 86
Moore, A. F., Polo, Ill 43, 69, 87
Moninger, D. M., Albion, Iowa 100
Potts, J. H., & Son, Jacksonville, Ill 61
Ross, L. F., Avon, Ill 83
Sandusky, Wm., Catlin, Ill 64
Sherman, J. B., Chicago, Ill 25, 62, 63
Taylor, A. W., Lake Forest, Ill 36
Weedman, John, Farmer City, Ill 35
Willard, J. G., & Son, Harristown, Ill 40, 41, 42, 55, 56, 57, 58, 59, 60

CLASS C—SHEEP.

COTSWOLD—9 head.

Brown, J. A., & Son, Decatur, Ill.....107, 108, 110, 111, 112, 113
Morgan & Cotton, Newman, Ill.....104, 105, 106

LEICESTER—2 head.

Hood, George, Guelph, Canada.....109, 114

SOUTHDOWN—21 head.

Hood, George, Guelph, Canada.....131, 138
Pickrell, George, Wheatfield, Ill.....119, 120, 121, 122, 123, 128, 129, 130, 132, 133, 135, 136, 139
Potts, J. H., & Son, Jacksonville, Ill.....115, 116, 117, 118, 126, 127

SHROPSHIREDOWN—4 head.

Morgan & Cotton, Newman, Ill.....124, 125, 134
Taylor Bros., Waynesville, Ill..... 137

MERINO—5 head.

Taylor Bros., Waynesville, Ill.....143, 144, 145, 146, 147

GRADES AND CROSSES—70 head.

Hood, George, Guelph, Canada.....157, 158, 160, 161, 162, 165, 166, 167, 168
Hudson, John, Moawequa, Ill.....148, 149, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217
Morgan & Cotton, Newman, Ill..... 156
Pickrell, George, Wheatfield, Ill.....150, 151, 152, 153, 154, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188
Taylor Bros., Waynesville, Ill.....159, 163, 164
Willson, Frank, Jackson, Mich.....155

CLASS D—SWINE.

BERKSHIRE—1 head.

Taylor Bros., Waynesville, Ill..... 218

POLAND CHINA—9 head.

Countryman, J. A., Rochelle, Ill.....220, 221, 222, 223, 224, 225, 226, 227
Taylor Bros., Waynesville, Ill..... 219

CHESTER WHITE—5 head.

Brown, J. A., & Son, Decatur, Ill..... 232
Scheidt & Davis, Dyer, Ind..... 229
Taylor Bros., Waynesville, Ill.....228, 230, 231

GRADES AND CROSSES—8 head.

Countryman, J. A. Rochelle, Ill..... 233
Davis, Henry, Dyer, Ind..... 236
Scheidt & Davis, Dyer, Ind.....234, 235, 237, 240, 241
Taylor Bros., Waynesville, Ill.....238, 239

QUALIFICATION OF JUDGES.

The State Board, after using all diligence and care in the selection of judges, thoroughly investigated, in open meeting, the qualification of each committeeman as to the number of years of practical experience had as butcher in killing and cutting up on the block of the various breeds of stock on exhibition, prejudices in favor of any of the various breeds of stock, either as a breeder or otherwise, and other essential matters likely to determine his ability to critically pass upon the respective merits of the superior animals on exhibition.

AWARDING COMMITTEES.

CLASS A—CATTLE.

LOT 1—SHORTHORNS.

Name.	*Residence.*	*State.*
George Metzger	Springfield	Illinois
James Peltz	Polo	Illinois
J. F. Briggs	Downer's Grove	Illinois

LOT 2—HEREFORDS.

A. R. Yoakum	Bement	Illinois
H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois

LOT 3—DEVONS.

A. R. Yoakum	Bement	Illinois
H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois

LOT 4—OTHER PURE BEEF BREEDS.

(No entries.)

LOT 5—GRADES OR CROSSES.

A. S. Trostle	Franklin Grove	Illinois
Thomas Irwin	Bloomington	Illinois
J. H. Bunn	Peoria	Illinois

LOT 6—SWEEPSTAKES.

J. H. Bunn	Peoria	Illinois
James Peltz	Polo	Illinois
H. A. Heinemann	Belleville	Illinois

LOT 7—GRAND SWEEPSTAKES.

A. S. Trostle	Franklin Grove	Illinois
John Dallenbrach	Champaign	Illinois
J. F. Briggs	Downer's Grove	Illinois

LOT 8—CAR LOADS.

A. R. Yoakum	Bement	Illinois
James Peltz	Polo	Illinois
H. Lichtenberger	Freeport	Illinois

LOT 9—DRESSED BULLOCKS.

Thomas Erwin	Bloomington	Illinois
J. F. Briggs	Downer's Grove	Illinois
A. S Trostle	Franklin Grove	Illinois

CLASS C—SHEEP.

LOT 13—LONG WOOLS.

H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois
A. R. Yoakum	Bement	Illinois

LOT 14—MIDDLE WOOLS.

H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois
A. R. Yoakum	Bement	Illinois

LOT 15—FINE WOOLS.

H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois
A. R. Yoakum	Bement	Illinois

LOT 16—GRADES OR CROSSES.

H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois
A. R. Yoakum	Bement	Illinois

LOT 17—SWEEPSTAKES.

A. S. Trostle	Franklin Grove	Illinois
J. F. Briggs	Downer's Grove	Illinois
George Heppert	Centralia	Illinois

LOT 18—GRAND SWEEPSTAKES.

Thomas Erwin	Bloomington	Illinois
Edward Chism	Albion	Illinois
J. H. Bunn	Peoria	Illinois

LOT 19—HEAVIEST FAT SHEEP.

George Heppert	Centralia	Illinois
A. B. Scurlock	Marion	Illinois

LOT 20—CAR LOADS.

A. R. Yoakum	Bement	Illinois
A. B. Scurlock	Marion	Illinois
George Heppert	Centralia	Illinois

LOT 21—DRESSED SHEEP.

H. Lichtenberger	Freeport	Illinois
James Peltz	Polo	Illinois
Edward Chism	Albion	Illinois

CLASS D—SWINE.

LOT 22—BERKSHIRES.

J. F. Briggs	Downer's Grove	Illinois
A. B. Scurlock	Marion	Illinois
George Heppert	Centralia	Illinois

LOT 23—POLAND-CHINA.

J. H. Bunn	Peoria	Illinois
J. F. Briggs	Downer's Grove	Illinois
A. B. Scurlock	Marion	Illinois

LOT 24—CHESTER WHITE.

J. F. Briggs	Downer's Grove	Illinois
A. B. Scurlock	Marion	Illinois
George Heppert	Centralia	Illinois

LOT 25—ESSEX.

(No entries.)

LOT 26—GRADES OR CROSSES.

J. F. Briggs	Downer's Grove	Illinois
A. B. Scurlock	Marion	Illinois
George Heppert	Centralia	Illinois

LOT 27—SWEEPSTAKES.

James Peltz	Polo	Illinois
H. A. Heinem an	Belleville	Illinois
Ed. Chism	Albion	Illinois

LOT 28—GRAND SWEEPSTAKES.

J. H. Bunn	Peoria	Illinois
A. S. Trostle	Franklin Grove	Illinois
Thomas Greene	Bloomington	Illinois

LOT 29—FAT POULTRY.

R. B. Mitchell	Chicago	Illinois
James Mayner	Chicago	Illinois
John H. Clapp	Chicago	Illinois

COMMITTEE ON MEASUREMENTS.

D. M. Moninger	Albion	Iowa
A. F. Moore	Polo	Illinois
J. Cotton	Newman	Illinois
E. A. Vittum	Canton	Illinois

BREEDING OF ANIMALS EXHIBITED.

CLASS A—CATTLE.

SAMUEL DYSART, *Superintendent.*

LOT 1—SHORTHORNS—THOROUGHBRED.

Steers 3 and under 4 years old—4 entries.

1. Vermillion, bred and exhibited by Wm. Sandusky, Catlin, Ill. Dropped February 13, 1874. Sire, Baron Booth, 34430; dam, Molly 3d. Page 1075, Vol. 12.

2. Oglesby, exhibited by J. D. Gillett, Elkhart, Ill.; bred by Joseph Berry, Buffalo Hart Grove, Ill. Dropped April 15, 1877. Sire, Shorthorn bull; dam, Shorthorn cow.

3. Beveridge, exhibited by J. D. Gillett, Elkhart, Ill.; bred by Joseph Berry, Buffalo Hart Grove, Ill. Dropped May 15, 1877. Sire, Shorthorn bull; dam, Shorthorn cow.

4. Cullom, exhibited by J. D. Gillett, Elkhart, Ill.; bred by Joseph Berry, Buffalo Hart Grove, Ill. Dropped June 15, 1877. Sire, Shorthorn bull; dam, Shorthorn cow.

Steers 2 and under 3 years—5 entries.

5. Robin Hood, bred and exhibited by John S. Highmore, Rochester, Ill. Dropped September 20, 1878. Sire, Canada Prince, 3241; dam, Roxana 5th. Page 639, Vol. 5, S. H. R.

6. Boynton, exhibited by John Sherman, Chicago, Ill.; bred by J. N. Brown's Sons, Berlin, Ill. Dropped December 13, 1877. Sire, Summit Airdrie, 12997; dam, Cyatha. Vol. 15, page 662.

7. Morris, exhibited by John B. Sherman, Chicago, Ill.; bred by J. N. Brown's Sons, Berlin, Ill. Dropped April 4, 1878. Sire, Summit Airdrie, 12997; dam, Lady of Leroy. Vol. 9, page 726.

8. Belmont, exhibited by John B. Sherman, Chicago, Ill.; bred by J. N. Brown's Sons, Berlin, Ill. Dropped May 17, 1878. Sire, Knightly Wiley, 26989; dam, Blossom. Vol. 12, page 648.

9. Abe Renic, bred and exhibited by Wm. Sandusky, Catlin, Ill. Dropped February 10, 1878. Sire, Baron Booth, 34430; dam, Molly 13. Vol. 19.

Steer 1 and under 2 years—1 entry.

10. Corporal, bred and exhibited by John S. Highmore, Rochester, Ill. Dropped November 21, 1878. Sire, Canada Prince, 3241; dam, Crocus. Vol. 6, page 391, S. H. R.

Cows 3 years old or over—3 entries.

11. Grand Chunk, bred and exhibited by R. George Dun, Mechanicsburg, Ohio. Dropped March 5, 1869. Sire, Northern Light, 6001; dam, Zenobia, by Mogul, 4177.

12. Maggie 4, exhibited by W. Scott, Wyoming, Ill.; bred by W. A. Brock, Leesburg, Ky. Dropped June 29, 1873. Sire, Shorthorn bull; dam, Maggie 2, by Duke Amelek, 6166.

13. Forest Queen 2d, exhibited by W. Scott, Wyoming, Ill.; bred by S. Merredith & Son, Cambridge City, Ind. Dropped January 5, 1875. Sire, Forrest Napier, 11973; dam, Forrest Queen, by Oliver, 5044.

LOT 2—HEREFORDS—THOROUGHBREDS.

Steers 3 and under 4 years—1 entry.

14. Alex, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped August 15, 1877. Sire, Success, 5031; dam, Hereford cow.

Steer 2 and under 3 years old—3 entries.

15. General, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped November 28, 1877. Sire, Success, 5031; dam, Hereford cow.

16. Will, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped June 28, 1878. Sire, Success, 5031; Hereford cow Mollie.

17. Washington, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped June 10, 1878. Sire, Success, 5031; dam, Hereford cow Miss Smith.

Steer 1 and under 2 years old—1 entry.

18. Advance, bred and exhibited by G. S. Burleigh, Mechanicsville, Iowa. Dropped December 1, 1878. Sire, Hereford bull Advance; dam, Hereford cow.

Cow 3 years old or over—1 entry.

19. Maid Orleans, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped March 1, 1877. Sire, Success, 5031; dam, Hereford cow Laura.

LOT 3—DEVONS—THOROUGHBREDS.

Steer 4 years old or over—2 entries.

20. Broad, exhibited by L. F. Ross, Avon, Ill.; bred by L. Rawson, Oak Creek, Wis. Dropped March 5, 1876. Sire, Sir John, 1065; dam, Extra, 937.

21. Buck, exhibited by L. F. Ross, Avon, Ill.; bred by L. Rawson, Oak Creek, Wis. Dropped March 15, 1876. Sire, Sir John, 1065; dam, Gem, 1685.

Steer 3 and under 4 years—2 entries.

22. Major, bred and exhibited by Thomas Bidwell, Gurnee, Ill. Dropped April 15, 1877. Sire, Baltimore, 725; dam, Cherry 5th, 1483.

23. Broad, bred and exhibited by Thomas Bidwell, Gurnee, Ill. Dropped April 17, 1877. Sire, Baltimore, 725; dam, Festina, 487.

Steer 2 and under 3 years—1 entry.

24. Honest Tom, bred and exhibited by L. F. Ross, Avon, Ill. Dropped July 15, 1878. Sire, Honesty, 915; dam, Mistake, 2537.

LOT 4—OTHER PURE BEEF BREEDS—NOT NAMED.

(No entry.)

LOT 5—GRADES AND CROSSES.

Steer 4 years old or over.

25. Nels Morris, grade Shorthorn, exhibited by John Sherman, Chicago; bred by Abram Mann, Vermilion county, Ill. Dropped April 15, 1873. Sire, Shorthorn bull; dam, ⅞ grade Shorthorn cow.

26. General Grant, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped April 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

27. Sheridan, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped September 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

28. Nichols, grade Shorthorn, exhibited by J. H. Graves, Chilesburg, Ky.; bred by Mrs. J. W. Prescott, North Middletown, Ky. Dropped March 15, 1876. Sire, grade Shorthorn bull; dam, grade Shorthorn cow.

29. Sherman, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped September 15, 1875. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

30. Faragut, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped April 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

31. Foote, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

32. Capt. Nels Morris, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped September 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

33. Barney, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn cow.

34. Centennial, grade Shorthorn, bred and exhibited by E. J. Green, Valparaiso, Ind. Dropped September 27, 1876. Sire, grade Shorthorn; dam, grade Shorthorn.

35. Moses, grade Shorthorn, exhibited by John Weedman, Farmer City, Ill.; bred by Mr. Jackson, Champaign, Ill. Dropped April 15th, 1875. Sire, Shorthorn bull; dam, ½ Shorthorn.

36. Duke, grade Shorthorn, bred and exhibited by A. W. Taylor, Lake Forrest, Ill. Dropped April 1, 1875.

Steers 3 and under 4 years—18 entries.

37. Mossy Coat, grade Hereford, exhibited by C. M. Culbertson, Chicago, Ill.; bred by Mr. Kline, Freedom Mill, Ohio. Dropped April 10, 1877. Sire, Hereford bull; dam, ¾ grade Hereford.

38. Uphorns, grade Hereford, exhibited by C. M. Culbertson, Chicago, Ill.; bred by Mr. Kline, Freedom Mill, Ohio. Dropped April 15, 1877. Sire, Hereford bull; dam, ¾ Hereford.

39. Morrow, grade Shorthorn, exhibited by J. H. Graves, Chilesburg, Ky.; bred by Sol. Osbourn, Hedges, Ky. Dropped December 31, 1876. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

40. Pickrell, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by W. Pickrell, Mechanicsburg, Ill. Dropped April 15, 1877. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

41. Stookey, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by T. Allen, Harristown. Dropped April 20, 1877. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

42. Ayman, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by S. Allen, Harristown, Ill. Dropped April 25, 1877. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

43. Frank, grade Shorthorn, exhibited and bred by A. F. Moore, Polo, Illinois. Dropped August 1, 1877. Sire, Shorthorn bull; dam, ¾ grade Shorthorn.

44. Blackhawk, grade Shorthorn, exhibited and bred by J. D. Gillett, Elkhart, Ill. Dropped August 15, 1877. Sire, Shorthorn; dam ¾ grade Shorthorn.

45. Osceola, grade Shorthorn, exhibited and bred by J. D. Gillett, Elkhart, Ill. Dropped April 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

46. Tecumseh, grade Shorthorn, exhibited and bred by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1877. Sire, Shorthorn; dam, Shorthorn.

47. Phillip, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

48. Logan, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1877. Sire, Shorthorn; dam, Shorthorn.

49. Uncas, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1877. Sire, Shorthorn; dam, ¾ Shorthorn.

50. Mohawk, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1877. Sire, Shorthorn; dam, Shorthorn.

51. Pontiac, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

52. Captain Jack, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped August 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

53. Modoc, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped August 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

54. Chub, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

55. Scroggins, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by D. Hall, Mechanicsburg, Ill. Dropped May 1, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

56. Burks, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by Aaron Ford, Illiopolis, Ill. Dropped May 10, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

57. Peck, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by J. N. Fullinwider, Mechanicsburg, Ill. Dropped May 15, 1877. Sire, Shorthorn; dam ¾ grade Shorthorn.

58. Masters, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by D. Hall, Mechanicsburg, Ill. Dropped May 25, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

59. Chamberlain, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by Aaron Ford, Illiopolis, Ill. Dropped June 5, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

60. Ford, grade Shorthorn, exhibited by J. G. Willard & Son, Harristown, Ill.; bred by A. C. Ford, Illiopolis, Ill. Dropped April 3, 1877. Sire, Shorthorn; dam, ¾ grade Shorthorn.

Steers 2 and under 3 years—20 entries.

61. Fred, grade Shorthorn, bred and exhibited by J. H. Potts & Son, Jacksonville, Ill. Dropped August 12, 1878. Sire, Shorthorn; dam, ½ grade Shorthorn.

62. Jim Blaine, grade Shorthorn, exhibited by John B. Sherman, Chicago, Ill., bred by J. C. Ramsey, Onarga, Ill. Dropped June 15, 1878. Sire, Shorthorn; dam, ½ grade Shorthorn.

63. Douglass, grade Shorthorn, exhibited by John B. Sherman, Chicago, Ill., bred by J. C. Ramsey, Onarga, Ill. Dropped June 15, 1878. Sire, Shorthorn; dam, native.

64. Richards, grade Shorthorn, exhibited by Wm. Sandusky, Catlin, Ill., bred by James Richards, Georgetown, Ill. Dropped March 7, 1878. Sire, Shorthorn; dam, grade Shorthorn.

65. Putnam, grade Hereford, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped July 12, 1878. Sire, Hereford; dam, native.

66. Rob Roy, grade Hereford, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped August 1, 1878. Sire, Hereford; dam, native.

67. Conqueror, grade Hereford, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped August 1, 1878. Sire, Hereford; dam, ½ grade Hereford.

68. Batcheller, grade Hereford, bred and exhibited by T. L. Miller, Beecher, Ill. Dropped August 1, 1878. Sire, Hereford; dam, native.

69. Hawks, grade Shorthorn, exhibited by A. F. Moore, Polo, Ill., bred by Hawks & Moore, Polo, Ill. Dropped April 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

70. Clara S. Reed, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill., Dropped May 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

71. Albert Pell, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Sire, Shorthorn; dam, ¾ grade Shorthorn.

72. Blood, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped April 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

73. McMullen, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped March 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

74. Blackstone, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped February 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

75. Jim Smith, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped June 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

76. Charlton, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped May 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

77. Whipple, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped May 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

78. Vaughan, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped May 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

79. Blank, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped May 15, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

80. Governor, grade Shorthorn, bred and exhibited by John D. Gillett, Elkhart, Ill. Dropped May 1, 1878. Sire, Shorthorn; dam ¾ grade Shorthorn.

Steer 1 and under 2 years—22 entries.

81. Sibley, grade Shorthorn, bred and exhibited by Cobb & Phillips, Kankakee, Ill. Dropped April 5, 1879. Sire, grade Shorthorn; dam, ½ grade Shorthorn.

82. Logan, grade Shorthorn, bred and exhibited by Cobb & Phillips, Kankakee, Ill. Dropped April 18, 1879. Sire, Shorthorn; dam, ½ Shorthorn.

83. Bill Young, grade Devon, exhibited by L. F. Ross, Avon, Ill.; bred by W. W. Young, Avon, Ill. Dropped March 3, 1879. Sire, Devon; dam, native.

84. Monroe, Hereford and Shorthorn, exhibited and bred by G. S. Burleigh, Mechanicsville, Iowa. Dropped Feb. 7, 1874. Sire, Hereford; dam, Shorthorn.

85. Gleason, Shorthorn and Hereford, bred and exhibited by G. S. Burleigh, Mechanicsville, Iowa. Dropped March 7, 1879. Sire, Shorthorn; dam, Hereford.

86. Kansas, grade Hereford, exhibited by T. L. Miller, Beecher, Ill. Dropped December 15, 1879. Sire, Hereford; dam, native cow.

87. Fred, grade Shorthorn, bred and exhibited by A. F. Moore, Polo, Ill. Dropped February 2, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

88. Clinker, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped February 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

89. Clem, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

90. Cider, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped November 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

91. Chip, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

92. Cherry, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped May 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

93. Chance, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped April 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

94. Change, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped August 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

95. Cheap, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped August 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

96. Chap, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped December 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

97. Cash, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

98. Cloud, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped June 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

99. Robinson Crusoe, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped September 15, 1879. Sire, Shorthorn; dam, ¾ grade Shorthorn.

100. Perfection, grade Shorthorn, bred and exhibited by D. M. Morgan, Albion, Iowa. Dropped January 10, 1879. Sire, London Duke 10th; dam, 15/16 Shorthorn.

101. Crash, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped December 27, 1878. Sire, Shorthorn; dam, ¾ grade Shorthorn.

102. Porter, grade Shorthorn, bred and exhibited by J. D. Gillett, Elkhart, Ill. Dropped December 24, 1878. Sire, Shorthorn; dam ¾ grade Shorthorn.

Cow 3 years old or over—1 entry.

103. Spot, grade Shorthorn, bred and exhibited by H. A. Bassett, Jefferson, Ill. Dropped April 15, 1869. Sire, Shorthorn; dam, ½ grade Shorthorn.

CLASS C—SHEEP.

D. W. VITTUM, SR., *Superintendent.*

LOT 13—LONG-WOOLS.

Wether 2 and under 3 years—6 entries.

104. Clinker, Cotswold, exhibited by Morgan & Cotton, Newman, Ill., bred by Wm. Richardson, Freedom Mills, Ohio. Dropped April 10, 1878. Sire, Cotswold; dam, Cotswold.

105. Captor, Cotswold, exhibited by Morgan & Cotton, Newman, Ill., bred by Wm. Richardson, Freedom Mills, Ohio. Dropped April 7, 1878. Sire, Cotswold; dam, Cotswold.

106. Cantive, Cotswold, exhibited by Morgan & Cotton, Newman, Ill., bred by William Richardson, Freedom Mills, Ohio. Dropped April 21, 1878. Sire, Cotswold; dam, Cotswold.

107. Jim, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1878. Sire, Gray Prince 3d; dam, Queen 1st.

108. Sampson, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1878. Sire, Gray Prince 3d; dam, Queen 2d.

109. William, Leicester, exhibited by George Hood, Guelph, Canada, bred by William Whitlaw, Guelph, Canada. Dropped March 15, 1878. Sire, Leicester; dam, Leicester.

Wether 1 and under 2 years—2 entries.

110. Favorite, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1879. Sire, Cotswold; dam, Lady Brown.

111 Trickey, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1879. Sire, Cotswold; dam, Pet Shy.

Wether under 1 year—1 entry.

112. Pet, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1880. Sire, Cotswold; dam, Fanny.

Ewe 2 and under 3 years—1 entry.

113. Snowflake, Cotswold, bred and exhibited by J. A. Brown & Son, Decatur, Ill. Dropped April 15, 1878. Sire, Gray Prince 3d; dam, Blackfoot.

Ewe 1 and under 2 years—no entry.

Ewe under 1 year—1 entry.

114. Belle, Leicester, exhibited by George Hood, Guelph, Can.; bred by T. Henderson, Guelph, Canada. Dropped March 13, 1880. Sire, Leicester; dam, Leicester.

LOT 14—MIDDLE WOOLS.

Wether 2 and under 3 years—9 entries.

115. Tom, Southdown, exhibited by J. H. Potts & Son, Jacksonville, Ill.; bred by John Queach, Jacksonville, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Southdown.

116. Dick, Southdown, exhibited by J. H. Potts & Son, Jacksonville, Ill.; bred by John Queach, Jacksonville, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Southdown.

117. Harry, Southdown, exhibited by J. H. Potts & Son, Jacksonville, Ill.; bred by John Queach, Jacksonville, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Southdown.

118. Jimmy, Southdown, exhibited by J. H. Potts & Son, Jacksonville, Ill.; bred by John Queach, Jacksonville, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Southdown.

119. John T., Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 3, 1878. Sire, Southdown; dam, Southdown.

120. Frank, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 7, 1878. Sire, Southdown; dam, Southdown.

121. Nick, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 11, 1878. Sire, Southdown; dam, Southdown.

122. J. N., Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 13, 1878. Sire, Southdown; dam, Southdown.

123. Mark, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Southdown.

Wether 1 and under 2 years—7 entries.

124. Victor, Shropshiredown, exhibited by Morgan & Cotton, Newman, Ill., March 27, 1879; bred by James Cotton, Newman, Ill. Sire, Shropshiredown; dam, Shropshiredown.

125. Vulcan, Shropshiredown, exhibited by Morgan & Cotton, Newman, Ill.; bred by James Newman, Newman, Ill. Dropped April 3, 1879. Sire, Shropshiredown; dam, Shropshiredown.

126. Modoc, Southdown, bred and exhibited by J. H. Potts & Son, Jacksonville, Ill. Dropped March 15, 1879. Sire, Southdown; dam, Southdown.

127. Barney, Southdown, bred and exhibited by J. H. Potts & Son, Jacksonville, Ill. Dropped March 15, 1879. Sire, Southdown; dam, Southdown.

128. Doc, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 1, 1879. Sire, Southdown; dam, Southdown.

129. Boots, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 6, 1879. Sire, Southdown; dam, Southdown.

130. O. P., Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 9, 1879. Sire, Southdown; dam, Southdown.

Wether under 1 year old—1 entry.

131. Derby, Southdown, exhibited by George Hood, Guelph, Canada; bred by T. Henderson, Guelph, Canada. Dropped April 12, 1880. Sire, Southdown; dam, Southdown.

Ewe 2 and under 3 years—2 entries.

132. Susie, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 1, 1878. Sire, Southdown; dam, Southdown.

133. Lady, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 2, 1878. Sire, Southdown; dam, Southdown.

Ewe 1 and under 2 years—3 entries.

134. Jennie, Shropshiredown, exhibited by Morgan & Cotton, Newman, Ill.; bred by Charles Byrd, Littywood, Staffordshire, England. Dropped March 17, 1879. Sire, Shropshiredown; dam, Shropshiredown.

135. Beauty, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 17, 1879. Sire, Southdown; dam, Southdown.

136. Jenny, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 21, 1879. Sire, Southdown; dam, Southdown.

Ewe under one year—3 entries.

137. Lady Down, Shropshiredown, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 15, 1880. Sire, Shropshiredown; dam, Shropshiredown.

138. May, Southdown, exhibited by George Hood, Guelph, Canada, bred by Henry Arkel, Puslinch, Canada. Dropped March 10, 1880. Sire, Southdown; dam, Southdown.

139. Alice, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 25, 1880. Sire, Southdown; dam, Southdown.

LOT 15—FINE WOOLS.

Wether 2 and under 3 years—1 entry.

140. Jim, Merino, exhibited by Taylor Bros., Waynesville, Ill., bred by John Burt, Armington, Ill. Dropped April 15, 1878. Sire, Merino ram; dam, Merino ewe.

Wether 1 and under 2 years—2 entries.

141. Jake, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 10, 1879. Sire, Merino; dam, Merino.

142. Sam, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 10, 1879. Sire, Merino; dam, Merino.

Wether under 1 year—1 entry.

143. Billy, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 15, 1880. Sire, Merino; dam, Merino.

Ewe 2 and under 3 years—2 entries.

144. Nancy, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped February 1, 1878. Sire, Merino; dam, Merino.

145. Sarah, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 15, 1878. Sire, Merino; dam, Merino.

Ewe 1 and under 2 years—2 entries.

146. Mary, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 20, 1879. Sire, Merino; dam, Merino.

147. Jenny, Merino, bred and exhibited by Taylor Bros., Waynesville, Ill. Dropped April 23, 1879. Sire, Merino; dam, Merino.

Ewe under 1 year—No entry.

LOT 16—GRADES OR CROSSES.

Wether 2 and under 3 years—7 entries.

148. Diamond, grade Shropshire, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, Cotswold and Southdown.

149. Billy, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, Cotswold and Southdown.

150. Cross, grade Cotswold, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 30, 1878. Sire, Cotswold; dam, native.

151. Ben, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 29, 1878. Sire, Southdown; dam, Cotswold.

152. Bud, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 27, 1878. Sire, Southdown, grade Southdown; dam, grade Cotswold.

153. Lucky, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 25, 1878. Sire, Southdown; dam, grade Cotswold.

154. Sam, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 23, 1878. Sire, Southdown; dam, grade Cotswold.

Wether 1 and under 2 years—4 entries.

155. Arkel, grade Southdown, bred and exhibited by Frank Willson, Jackson, Mich. Dropped March 15, 1879. Sire, Southdown; dam, Cotswold.

156. Warrior, grade Shropshiredown, exhibited by Morgan & Cotton, Newman, Ill. Dropped April 12, 1879. Sire, Shropshiredown; dam, Shropshiredown and Southdown.

157. Professor, grade Oxford, exhibited by George Hood, Guelph, Canada, bred at Model Farm, Guelph, Canada. Dropped March 11, 1879. Sire, Oxford; dam, Cotswold and Leicester.

158. Rugby, grade Oxford, exhibited by George Hood, Guelph, Canada, bred at Model Farm, Guelph, Canada. Dropped March 9, 1879. Sire, Oxford; dam, Cotswold and Leicester.

Wether under 1 year—3 entries.

159. Zeb, grade Shropshire, exhibited by Taylor Bros., Waynesville, Ill., bred by Z. D. Cantrall, Hallsville, Ill. Dropped March 15, 1880. Sire, ¾ Shropshire; dam, ¾ Cotswold.

160. Fred., grade Oxford, bred and exhibited by George Hood, Guelph, Canada. Dropped April 2, 1880. Sire, Oxford; dam, Cotswold and Leicester.

161. Robin, grade Oxford, bred and exhibited by George Hood, Guelph, Canada. Dropped April 3, 1880. Sire, Oxford; dam, Cotswold and Leicester.

Ewe 2 and under 3 years—1 entry.

162. Lady Brown, grade Oxford, bred and exhibited by George Hood, Guelph, Canada. Dropped April 5, 1878. Sire, Oxford; dam, Cotswold and Leicester.

Ewe 1 and under 2 years—1 entry.

163. Jape, grade Cotswold, exhibited by Taylor Bros., Waynesville, Ill., bred by W. B. Russum, Waynesville, Ill. Dropped June 1, 1878. Sire, ¼ Shropshire, ¼ Cotswold, ½ Merino; dam, ½ Cotswold, ½ native.

Ewe under 1 year—3 entries.

164. Susan, Shropshire and Cotswold, exhibited by Taylor Bros., Waynesville, Ill., bred by L. D. Cantrall, Hallsville, Ill. Dropped March 14, 1880. Sire, ¾ Shropshire; dam, ¾ Cotswold.

165. Minnie, grade Oxford, bred and exhibited by George Hood, Guelph, Canada. Dropped April 7, 1880. Sire, Oxford; dam, Cotswold and Leicester.

166. Ann, grade Oxford, bred and exhibited by George Hood, Guelph, Canada. Dropped April 8, 1880. Sire, Oxford; dam, Cotswold and Leicester.

LOT 19—HEAVIEST FAT SHEEP.

167. Hanlan, Cotswold, exhibited by George Hood, Guelph, Canada; bred by M. Kirby, Guelph, Canada. Dropped March 15, 1877. Sire, Cotswold; dam, Cotswold.

168. Lady Swanwick, Cotswold, exhibited by George Hood, Guelph, Canada; bred by Russel Swanwick, Cirencester, England. Dropped March 21, 1877. Sire, Cotswold; dam Cotswold.

LOT 20—CAR LOADS.

169. Fisher, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 1, 1878. Sire, Southdown; dam, Southdown.

170. Mills, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 2, 1878. Sire, Southdown; dam, Southdown.

171. Dewey, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 3, 1878. Sire Southdown; dam, Southdown.

172. Higgins, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 4, 1878. Sire, Southdown; dam, Southdown.

173. Hoyt, Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 5, 1878. Sire, Southdown; dam, Southdown.

174. Bradford, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 6, 1878. Sire Southdown; dam, Cotswold and Southdown.

175. Scott, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 7, 1878. Sire, Southdown; dam, Cotswold and Southdown.

176. Gillham, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 8, 1878. Sire, Southdown; dam, Cotswold and Southdown.

177. Bunn, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 9, 1878. Sire, Southdown; dam, Cotswold and Southdown.

178. Ellsworth, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 10, 1878. Sire, Southdown; dam, Cotswold and Southdown.

179. Emery, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 11, 1878. Sire, Southdown; dam, Cotswold and Southdown.

180. Reynolds, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 12, 1878. Sire, Southdown; dam, Cotswold and Southdown.

181. Haskell, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 13, 1878. Sire, Southdown; dam, Cotswold and Southdown.

182. Moore, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 14, 1878. Sire, Southdown; dam, Cotswold and Southdown.

183. Dysart, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 15, 1878. Sire, Southdown; dam, Cotswold and Southdown.

184. Snoad, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 16, 1878. Sire, Southdown; dam, ½ Southdown, ½ Native.

185. Cobb, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 17, 1878. Sire, Southdown; dam, ½ Southdown, ½ native.

186. Vittum, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 18, 1878. Sire, Southdown; dam, ½ Southdown, ½ native.

187. Beauty, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 19, 1878. Sire, Southdown; dam, ½ Southdown, ½ native.

188. Douglas, grade Southdown, bred and exhibited by George Pickrell, Wheatfield, Ill. Dropped April 20, 1878. Sire, Southdown; dam, ½ Southdown, ½ native.

189. Moses, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

190. Duke, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

191. Tom, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

192. Aaron, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

193. Garfield, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

194. General, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

195. Grant, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

196. Logan, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

197. Logan, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

198. Sherman, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

199. David, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

200. Uriah, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

201. Sol, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

202. Mike, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

203. Jim, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

204. John, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

205. Captain, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

206. Colonel, grade Shropshiredown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Shropshiredown; dam, ½ Cotswold, ½ Southdown.

207. Isaac, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

208. Shakespeare, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

209. Royal, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Cotswold and Southdown; dam, grade Merino.

210. Elias, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Cotswold and Southdown; dam, grade Merino.

211. Fancy, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, Cotswold and Southdown; dam, grade Merino.

212. Ben, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold and ½ Southdown; dam, grade Merino.

213. Cronin, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

214. English, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

215. Bradley, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

216. Arthur, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown, dam, grade Merino.

217. Eldred, grade Cotswold and Southdown, bred and exhibited by John Hudson, Moawequa, Ill. Dropped March 15, 1878. Sire, ½ Cotswold, ½ Southdown; dam, grade Merino.

CLASS D—SWINE.

WM. VOORHIES, JR., *Superintendent.*

LOT 22—BERKSHIRES.

Sow 1 and under 2 years—1 entry.

218. Lady Squire, exhibited by Taylor Bros., Waynesville, Ill.; bred by W. A. Squire, Kenny, Ill. Farrowed June 4, 1879. Sire, Berkshire boar; dam, Berkshire sow.

LOT 23—POLAND CHINA.

Barrow 1 and under 2 years—3 entries.

219. McGee, exhibited and bred by Taylor Bros., Waynesville, Ill. Farrowed August 1, 1879. Sire, Poland boar; dam, Poland sow.

220. Garfield, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed May 8, 1879. Sire, Chieftain; dam, Fanny.

221. Arthur, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed June 28, 1879. Sire, Butler; dam, Ida Roy.

Barrow under 1 year—2 entries.

222. Black Prince, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed December 14, 1879. Sire, Dick Moore; dam, Susan.

223. Eclipse, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed May 10, 1879. Sire, Dick Moore; dam, May Queen.

Sow 1 and under 2 years—1 entry.

224. Jenny Lind, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed October 12, 1879. Sire, Dick Moore; dam, Kate Roy.

Sow under 1 year—3 entries.

225. Topsey, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed December 14, 1879. Sire, Dick Moore; dam, Susan.

226. Belle Douglas, exhibited and bred by J. Countryman, Rochelle, Ill. Farrowed May 19, 1879. Sire, Black Douglas; dam, Minnie.

227. May Douglas, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed May 19, 1879. Sire, Black Douglas; dam, Minnie.

LOT 24—CHESTER WHITE.

Barrow under 1 year—2 entries.

228. George, exhibited and bred by Taylor Brothers, Waynesville, Ill. Farrowed April 1, 1880. Sire, Chester; dam, Chester.

229. Billy, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed January 4, 1880. Sire, Gold Dust; dam, Dutchess.

Sow 1 and under 2 years—1 entry.

230. Betsey, exhibited and bred by Taylor Brothers, Waynesville, Ill. Farrowed November 1, 1879. Sire, Chester; dam, Chester.

Sow under 1 year—2 entries.

231. Maggie, exhibited and bred by Taylor Brothers, Waynesville, Ill. Farrowed March 11, 1880. Sire, Chester; dam, Chester.

232. Nellie, exhibited and bred by J. A. Brown & Son, Decatur, Ill. Farrowed March 15, 1880. Sire, Chester; dam, Chester.

LOT 26—GRADES AND CROSSES.

Barrow 1 and under 2 years—3 entries.

233. Billy, exhibited and bred by J. A. Countryman, Rochelle, Ill. Farrowed June 2, 1879. Sire, Poland Chieftain; dam, grade Poland.

234. Hancock, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed June 21, 1879. Sire, Berkshire, Royal Butterfly; dam, grade Berkshire, Lady Bird.

235. Garfield, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed June 24, 1879. Sire, Victoria, Royal Duke; dam, Victoria, Pretty Dutchess.

Barrow under 1 year—2 entries.

236. Prince Albert, exhibited by Henry Davis, Dyer, Ind., bred by Scheidt & Davis, Dyer, Ind. Farrowed December 20, 1879. Sire, Victoria, Grand Duke; dam, grade Victoria, Gipsey Girl 2d.

237. Prince Alfred, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed December 20, 1879. Sire, Victoria, Grand Duke; dam, grade Victoria, Gipsey Girl.

Sow 1 and under 2 years—2 entries.

238. Lady Wilson, exhibited and bred by Taylor Brothers, Waynesville, Ill. Farrowed October 21, 1879. Sire, Suffolk; dam, Chester.

239. Jennie Lind, exhibited and bred by Taylor Brothers, Waynesville, Ill. Farrowed October 15, 1879. Sire, Suffolk; dam, Chester White.

Sow under 1 year—2 entries.

240. Beauty, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed November 30, 1879. Sire, Victoria, Royal Duke; dam, Victoria, Pretty Dutchess.

241. Topsey, exhibited and bred by Scheidt & Davis, Dyer, Ind. Farrowed January 21, 1880. Sire, Victoria; dam, Victoria.

TABLE OF MEASUREMENTS, ETC.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of carcass		Heart girth		Flank girth		Height from Ground. Top line. Shoulder		Hip		Bot. line. Fore flank		Flank		Depth from top line to lower shoulder point		Thickness through the crop		Length of back from top of shoulder to loin		Width across the loins		Length of quarter from rump to loin		Depth from loin to hock		Girth of paunch (middle)		Girth of throat latch	
		Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	CLASS A—CATTLE.																														
	Lot 1—Shorthorns.																														
	Steer 3 and under 4 yrs.																														
	FIRST PREMIUM NO. 1—SECOND PREMIUM NO. 4.																														
1	Vermilion	6	5	8	7	8	9	5	..	5	1	2	..	2	7	2	7	2	5	2	7	2	7	2	7	3	....	9	4	3	7
2	Oglesby	6	1	8	3	8	6	5	..	5	1	1	11	2	8	2	3	2	7	2	7	2	7	2	3	3	....	9	4	3	6
3	Beveridge	5	10	8	1	8	6	4	10	4	11	1	11	2	9	2	5	2	4	2	5	2	6	2	4	2	11	8	9	3	5
4	Cullom	6	1	8	6	8	11	5	..	5	..	2	1	2	6	2	4	2	5	2	7	2	8	2	5	2	11	9	4	3	6
	Steer 2 and under 3 years.																														
	FIRST PREMIUM NO. 6—SECOND PREMIUM NO. 8.																														
5	Robin Hood	5	6	7	1	7	2	4	7	4	8	2	1	2	5	2	1	2	....	2	4	2	1	1	11	2	7	8	....	3	1
6	Boynton	5	8	7	8	7	9	4	7	4	9	1	11	2	3	2	5	2	1	2	7	2	4	2	....	2	8	8	9	3	3
7	Morris	6	..	7	11	8	..	4	10	4	11	2	1	2	5	2	6	2	4	2	3	2	4	2	2	2	10	8	5	3	6
8	Belmont	6	2	7	9	7	9	4	10	4	8	2	2	2	6	2	5	2	4	2	8	2	5	2	2	2	9	8	3	3	7
9	Abe Renic	5	10	7	9	8	..	4	11	4	11	2	1	2	6	2	4	2	1	2	9	2	5	2	2	2	10	8	11	3	6
	Steer 1 and under 2 years.																														
	FIRST PREMIUM NO. 10.																														
10	Corporal	5	6	7	1	7	10	4	9	4	11	2	3	2	6	2	2	1	9	2	4	2	2	1	10	2	7	8	2	3	3

	Cow 3 years old or over.																															
	FIRST PREMIUM NO. 13—SECOND PREMIUM NO. 11.																															
11	Grand Chunk	5	7	7	5	8	1	3	11	4	2	1	7	1	9	2	....	2	3	2	3	2	8	2	3	2	8	8	4	2	9
12	Maggie 4th	5	7	7	6	8	3	4	7	4	7	1	10	2	..	2	3	2	....	2	5	2	6	2	3	2	8	8	6	3	1
13	Forest Queen 2d	5	9	7	6	8	4	4	6	4	6	1	11	1	11	2	6	2	4	2	8	2	6	2	2	2	10	8	10	3	2
	Lot 2—Herefords.																															
	Steer 3 and under 4 years																															
	FIRST PREMIUM NO. 14.																															
14	Alex	5	8	8	3	8	2	4	5	4	6	1	9	2	..	2	8	2	5	2	5	2	6	2	3	2	6	9	....	3	7
	Steer 2 and under 3 years.																															
	FIRST PREMIUM NO. 16—SECOND PREMIUM NO. 17.																															
15	General	5	9	7	11	7	10	4	8	4	8	1	11	2	2	2	2	2	4	2	10	2	2	2	....	2	8	8	9	3	3
16	Will	5	3	7	4	7	11	4	5	4	7	1	11	2	3	2	1	2	1	2	8	2	3	2	....	2	9	8	3	3	6
17	Washington	5	7	7	7	8	4	4	5	4	6	1	10	2	2	2	3	2	2	2	4	2	2	2	2	2	9	8	5	3	6
	Steer 1 and under 2 years.																															
	FIRST PREMIUM NO. 18.																															
18	Advance	4	11	6	6	6	11	3	11	4	..	1	8	2	1	1	11	1	9	2	....	1	11	2	....	2	5	7	1	3	2
	Cow 3 years old or over.																															
	FIRST PREMIUM NO. 19.																															
19	Maid of Orleans	5	5	7	10	8	..	4	3	4	5	1	9	2	1	2	5	2	4	2	7	2	4	2	1	2	6	9	1	3	3
	Lot 3—Devons.																															
	Steer 3 and under 4 years;																															
	FIRST PREMIUM NO. 22—SECOND PREMIUM NO. 23.																															
22	Major	5	1	6	8	6	10	4	2	4	2	1	10	2	3	1	11	1	10	2	2	1	10	1	11	2	8	7	4	3	3
23	Broa t	5	..	6	7	6	6	4	2	4	2	1	10	2	4	2	....	1	7	2	6	1	10	1	9	2	5	7	4	3	1
	Steer 2 and under 3 years.																															
	FIRST PREMIUM NO. 24.																															
24	Honest Tom	4	11	6	10	6	8	4	2	4	4	1	10	2	5	2	1	1	11	2	3	2	1	1	10	2	3	7	6	3	1

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of carcass		Heart girth		Flank girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank		Depth from top line to lower shoulder point		Thickness through the crop		Length of back from top of shoulder to loin		Width across the loins		Length of quarter from rump to loin		Depth from loin to hock		Girth of paunch (middle)		Girth of throat latch	
		Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	Steer 1 and under 2 years.																														
	NO ENTRIES.																														
	Cow 3 years old or over.																														
	NO ENTRIES.																														
	Lot 4—other pure beef breeds (not named).																														
	NO ENTRIES.																														
	Lot 5—Grades or Crosses.																														
	Steer 3 and under 4 years.																														
	FIRST PREMIUM NO. 39—SECOND PREMIUM NO. 37.																														
37	Mossy Coat	6	..	8	..	8	2	4	9	4	9	2	..	2	5	2	5	2	5	2	5	2	4	2	2	2	7	8	6	3	6
38	Uphorns	5	7	7	6	7	9	4	9	4	10	2	..	2	6	2	5	2	3	2	7	2	3	2	1	2	8	8	3	3	5
39	Morrow	6	1	8	2	8	6	4	8	4	9	1	9	2	5	2	3	2	4	2	9	2	7	2	1	2	11	9	4	3	....
40	Pickrell	6	1	7	11	8	2	4	9	4	11	1	10	2	6	2	3	2	....	2	4	2	2	2	1	2	10	8	6	3	5
41	Stookey	6	1	7	11	8	4	4	8	4	8	1	11	2	4	2	1	1	11	2	5	2	1	2	4	3	....	8	7	3	4
42	Ayman	6	4	7	8	8	4	4	10	4	10	2	1	2	8	2	6	2	....	3	....	2	2	2	....	2	10	8	5	3	4
43	Frank	6	..	7	11	8	4	5	..	5	..	2	..	2	4	2	4	2	2	2	7	2	4	2	1	2	10	8	11	3	5
44	Black Hawk	5	7	8	1	8	2	4	11	4	10	1	11	2	5	2	3	2	1	2	3	2	3	2	3	2	9	9	....	3	5
45	Osceola	6	1	8	..	8	2	4	10	5	..	2	..	2	5	2	5	2	3	2	4	2	7	2	3	2	11	9	....	3	6
46	Tecumseh	5	10	8	3	8	4	4	10	4	10	1	10	2	7	2	4	2	3	2	4	2	4	2	3	3	1	9	1	3	5
47	Philip	5	8	8	1	7	11	4	5	4	5	1	9	2	3	2	4	2	2	2	5	2	3	2	....	2	7	8	9	2	10
48	Logan	5	8	7	10	7	11	4	8	4	9	1	10	2	5	2	4	2	3	2	4	2	5	2	1	2	11	8	10	3	6
49	Uncas	5	10	8	2	8	1	4	9	4	10	1	10	2	6	2	5	2	1	2	7	2	2	2	4	3	....	8	8	3	4
50	Mohawk	6	3	7	9	7	10	4	8	4	8	1	9	2	4	2	3	2	1	2	3	2	2	2	....	2	9	8	5	3	6

51	Pontiac	5	10	8	1	8	3	4	8	4	9	1	10	2	1	2	4	2	1	2	3	2	4	2	3	3	1	8	11	3	3
52	Capt. Jack	5	11	7	10	8	4	4	10	4	10	2	1	2	5	2	4	2	2	2	2	2	4	2	5	3	....	9	....	3	6
53	Modoc	5	11	8	3	8	4	4	9	4	10	1	10	2	6	2	4	2	1	2	5	2	3	2	4	2	10	8	11	3	5
54	Chub	5	2	7	10	7	9	4	4	4	5	1	9	2	4	2	4	2	1	2	....	2	2	2	3	2	9	8	2	3	2
	Steer 2 and under 3 years.																														
	FIRST PREMIUM NO. 69—SECOND PREMIUM NO. 61.																														
61	Fred	5	8	7	7	7	9	4	9	4	10	2	2	2	5	2	8	2	2	2	4	2	3	2	5	2	10	8	7	3	4
62	Jim Blaine	5	6	7	6	7	8	4	8	4	9	2	..	2	4	2	1	2	....	2	8	2	1	2	2	2	8	8	6	3	7
63	Douglas	5	5	7	3	7	8	4	7	4	7	1	10	2	3	2	3	2	1	2	7	2	5	1	10	2	6	8	4	3	6
64	Richards	6	..	7	7	7	11	4	6	4	11	1	11	2	5	2	4	2	4	2	11	2	6	2	2	2	8	8	10	3	6
65	Putnam	5	7	7	8	7	6	4	4	4	5	1	10	2	3	2	5	2	3	2	8	2	4	2	1	2	7	8	5	3	6
66	Rob Roy	5	6	7	5	8	..	4	4	4	7	1	10	2	2	2	2	2	3	2	4	2	2	1	11	2	7	8	4	3	6
67	Conqueror	5	6	7	10	8	1	4	6	4	6	1	10	2	2	2	5	2	....	2	5	2	4	1	11	2	7	8	10	3	10
68	Batchelor	5	6	7	7	7	8	4	7	4	7	1	10	2	4	2	5	2	1	2	8	2	1	2	2	2	8	8	6	3	7
69	Hawks	5	10	8	2	8	4	4	8	4	9	1	10	2	2	2	2	2	1	2	7	2	7	2	2	2	10	8	11	3	4
70	Clare S. Reed	5	8	7	10	8	2	4	7	4	8	1	10	2	5	2	1	2	1	2	3	2	3	2	2	2	8	8	10	3	2
71	Albert Pell	5	11	7	9	7	11	4	8	4	8	1	10	2	3	2	5	2	1	2	4	2	2	2	2	2	10	8	7	3	3
72	Blood	5	9	8	..	8	1	4	9	4	10	1	10	2	5	2	3	2	1	2	1	2	4	2	1	2	9	8	9	3	4
73	McMullen	5	7	7	9	8	1	4	8	4	8	1	11	2	5	2	2	2	1	2	2	2	2	2	1	2	9	9	6	3	5
74	Blackstone	5	8	7	7	7	11	4	6	4	8	1	11	2	5	2	3	2	....	2	3	2	2	2	1	2	9	8	5	3	1
75	Jim Smith	5	5	7	7	7	9	4	7	4	7	1	11	2	5	2	2	2	2	2	3	2	4	2	....	2	7	8	....	3	3
76	Charlton	5	5	7	4	7	6	4	7	4	8	1	11	2	7	2	2	2	1	2	4	2	2	2	2	2	9	7	10	3	3
77	Whipple	5	4	7	8	7	4	4	5	4	7	1	10	2	5	2	1	2	....	2	2	2	1	2	1	2	9	8	....	3	1
78	Vaughn	5	7	7	5	7	8	4	10	4	10	2	3	2	7	2	2	2	....	2	3	2	3	2	....	2	7	8	3	3	4
79	Blank	5	7	7	6	7	9	4	6	4	6	2	..	2	5	2	2	2	....	2	2	2	....	2	1	2	10	7	11	3	2
80	Governor	5	6	7	7	7	8	4	6	4	8	2	..	2	4	2	3	2	1	2	4	2	1	2	1	2	7	8	3	3	4
	Steer 1 and under 2 years.																														
	FIRST PREMIUM NO. 100—SECOND PREMIUM NO. 86.																														
81	Sibley	5	4	6	11	6	11	4	4	4	5	1	11	2	5	2	....	2	....	2	8	2	1	1	10	2	7	8	....	3	1
82	Logan	5	2	6	9	7	4	4	7	4	8	2	2	2	6	2	....	1	10	2	1	2	....	1	11	2	6	7	11	3	1
83	Bill Young	5	..	6	1	6	4	4	2	4	3	2	..	2	4	2	....	1	9	2	2	1	9	1	9	2	....	6	7	2	10
84	Monroe	5	2	6	9	7	4	4	1	4	1	1	10	2	1	2	....	1	11	2	2	2	....	2	....	2	6	7	5	3	1
85	Gleason	5	3	7	2	7	6	4	5	4	6	2	..	2	3	2	....	2	....	2	1	2	....	2	1	2	6	7	10	3	5
86	Kansas	5	9	7	..	7	3	4	6	4	6	1	11	2	3	2	....	1	10	2	6	2	2	1	11	2	7	8	2	3	4
87	Fred	5	2	7	..	7	5	4	5	4	7	2	..	2	2	2	2	2	2	2	5	2	1	2	....	2	7	8	3	2	9
88	Clinker	5	1	6	7	7	..	4	4	4	5	2	..	2	4	2	3	1	9	2	4	1	11	1	10	2	....	7	4	2	11
89	Clem	5	6	6	9	6	10	4	6	4	7	2	..	2	4	2	....	1	10	2	8	2	....	1	9	2	6	7	7	3	2
90	Cider	5	2	6	5	6	6	4	6	4	7	2	2	2	6	2	....	1	10	2	4	2	....	1	11	2	5	7	6	3	1
91	Chip	5	3	6	4	6	10	4	2	4	3	1	11	2	4	2	....	1	11	2	3	2	1	1	10	2	4	7	2	3	2
92	Cherry	5	..	6	3	6	6	4	4	4	4	2	..	2	6	1	10	1	10	2	3	1	11	1	10	2	4	7	1	3	....
93	Chance	5	1	6	5	6	8	4	4	4	6	1	11	2	6	1	10	1	11	2	1	2	....	1	10	2	5	7	2	2	10
94	Change	5	6	6	7	6	7	4	5	4	5	2	..	2	5	2	....	1	11	2	4	2	....	1	9	2	3	7	5	3	4
95	Cheap	5	1	6	..	6	2	4	2	4	3	1	11	2	6	1	11	1	9	2	3	1	10	1	8	2	3	6	8	2	11
96	Chap	5	1	6	6	6	8	4	3	4	5	2	..	2	6	1	11	1	10	2	3	1	11	1	9	2	4	7	1	2	11
97	Cash	5	7	6	8	6	10	4	7	4	7	2	1	2	5	2	1	1	9	2	4	1	11	1	10	2	2	7	3	3	1
98	Cloud	5	1	6	8	6	10	4	5	4	7	1	11	2	6	2	1	1	9	2	2	1	10	2	11	2	8	7	1	3	2

Table of Measurements, Etc. Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of carcass		Heart girth		Flank girth		Height from Ground. Top line. Shoulder		Hip		Bot. line. Fore flank		Flank		Depth from top line to lower shoulder point		Thickness through the crop		Length of back from top of shoulder to loin		Width across the loins		Length of quarter from rump to loin		Depth from loin to hock		Girth of paunch middle		Girth of throat latch	
		Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In
99	Robinson Crusoe	5	2	6	4	6	6	4	3	4	5	1	11	2	5	1	11	1	10	2	3	1	11	2	2	2	7	7	1	2	9
100	Perfection	5	6	6	11	7	..	4	5	4	5	1	10	2	2	2	4	2	2	2	4	2	2	2	....	2	6	7	7	3	1
101	Crash	5	6	6	10	7	1	4	6	4	7	2	..	2	5	2	1	1	10	2	3	2	....	2	1	2	8	7	6	3	3
102	Porter	5	8	7	7	7	10	4	7	4	7	1	10	2	3	2	2	2	....	2	8	2	3	2	....	2	9	8	6	3	3
	Cow 3 years old or over.																														
	FIRST PREMIUM NO. 103.																														
103	Spot	5	11	7	9	8	3	4	8	4	7	1	10	1	11	2	10	2	2	3	1	2	5	1	8	2	10	8	8	3	8
	Lot 8—Car loads.																														
	Cattle 3 and under 4 years.																														
55	Scroggins	6	3	8	2	7	11	5	1	5	1	2	..	2	7	2	2	2	1	2	7	2	2	2	2	2	10	8	6	3	5
56	Burks	6	2	8	2	8	6	4	10	4	10	2	2	2	7	2	4	2	....	2	3	2	1	2	1	2	11	8	7	3	6
57	Peck	6	1	8	1	8	1	4	11	4	10	2	..	2	4	2	2	2	....	2	4	2	1	2	4	3	1	8	5	3	4
58	Masters	6	1	7	7	8	2	4	8	4	9	2	..	2	4	2	5	1	11	2	10	2	1	2	1	2	10	8	7	3	6
59	Chamberlain	6	2	7	7	8	..	4	11	4	11	2	2	2	7	2	4	2	....	2	8	2	2	1	11	2	8	8	5	3	7
	Lot 10—Heaviest Fat Steer.																														
	FIRST PREMIUM NO. 25—SECOND PREMIUM NO. 35.																														
28	Nichols	6	3	9	..	9	4	5	..	5	..	1	9	2	3	2	5	2	8	2	10	2	9	2	1	3	....	10	....	3	3
25	Nels. Morris	7	3	9	6	9	9	5	5	5	5	1	11	2	4	3	....	2	8	3	1	2	11	2	10	3	8	10	5	4	11
20	Broad	6	2	8	4	8	..	4	11	5	1	2	..	2	6	2	3	2	....	2	8	2	4	2	3	3	2	8	10	3	7
26	General Grant	6	2	8	11	9	..	4	11	4	11	1	10	2	4	2	6	2	5	2	6	2	7	2	8	3	5	9	8	3	6
27	Sheridan	6	5	8	9	9	..	4	11	5	..	1	11	2	4	2	4	2	4	2	6	2	6	2	5	3	2	9	10	3	9
29	Sherman	6	1	8	9	8	9	4	10	4	11	1	9	2	4	2	6	2	6	2	5	2	7	2	8	3	4	9	7	3	6
30	Farragut	6	3	8	7	8	9	4	9	4	10	1	9	2	2	2	6	2	6	2	5	2	7	2	4	3	1	9	4	3	2

31 Foote	5	11	8	9	8	11	4	11	5	1	1	11	2	6	2	6	2	7	2	6	2	6	2	5	3	1	9	7	3	2
32 Capt. Nels. Morris	6	1	8	7	8	8	4	8	4	10	1	11	2	3	2	4	2	4	2	10	2	5	2	5	3	1	9	3	3	5
33 Barney	6	4	8	8	8	10	5	..	5	1	2	..	2	5	2	8	2	5	2	9	2	7	2	5	3	1	9	7	3	7
35 Moses	7	3	9	4	9	4	5	8	5	9	2	1	2	8	2	8	2	3	3	4	2	6	2	8	3	4	9	11	4	2
36 Duke	6	2	8	4	8	6	4	11	4	11	1	11	2	5	2	6	2	4	3	....	2	5	2	3	3	....	9	6	3	10
34 Centennial	5	5	7	10	8	..	4	7	4	9	1	11	2	4	2	2	2	1	2	6	2	3	2	4	3	....	8	7	3	6
21 Buck	5	9	8	2	8	3	4	9	4	10	1	11	2	5	2	6	2	1	2	8	2	2	1	11	2	9	8	7	3	10

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of Carcass		Heart Girth		Flank Girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank	
		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	CLASS C—SHEEP.														
	Lot 13—Long Wools.														
	Wether 2 and under 3 years.														
	FIRST PREMIUM NO. 105—SECOND PREMIUM NO. 104.														
104	Clinker, Cotswold	3	5	4	9	4	6	3	..	2	11	1	5	1	7
105	Captor, Cotswold	3	6	4	7	4	3	2	11	3	..	1	3	1	7
106	Captive Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..
107	Jim, Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..
108	Sampson, Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..
109	William, Leicester	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Wether 1 and under 2 years.														
	FIRST PREMIUM NO. 110—SECOND PREMIUM NO. 111.														
110	Favorite, Cotswold	3	5	4	7	4	2	2	11	2	9	1	5	1	7
111	Trickey, Cotswold	3	3	4	5	4	2	2	11	2	10	1	4	1	7
	Wether under 1 year.														
	No award. Animal not considered worthy.														
112	Pet, Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe 2 and under 3 years.														
	FIRST PREMIUM NO. 113.														
113	Snowflake, Cotswold	3	7	5	2	4	7	3	1	3	4	1	6	1	8
	Ewe 1 and under 2 years.														
	NO ENTRIES.														
	Ewe under 1 year.														
	FIRST PREMIUM NO. 114.														
114	Belle, Leicester	3	3	3	..	3	4	2	4	2	5	1	3	1	5
	Lot 14—Middle Wools.														
	Wether 2 and under 3 years.														
	FIRST PREMIUM NO. 116—SECOND PREMIUM NO. 118.														
115	Tom, Southdown	3	8	4	9	4	4	3	..	3	..	1	5	1	7
116	Dick, Southdown	3	6	4	4	4	3	2	11	3	..	1	3	1	5
117	Harry, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
118	Jimmy, Southdown	3	6	4	7	4	3	3	..	3	2	1	4	1	7
119	John T. Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
120	Frank, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
121	Nick, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
122	J. N., Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
123	Mark, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of Carcass		Heart girth		Flank girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank	
		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	Wether 1 and under 2 years.														
	FIRST PREMIUM NO. 124—SECOND PREMIUM NO. 125.														
124	Victor, Shropshiredown	3	5	4	5	4	4	3	..	2	11	1	5	1	6
125	Vulcan, Shropshiredown	3	6	4	5	4	4	2	9	2	11	1	7	1	8
126	Modoc, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
127	Barney, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
128	Doc, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
127	Boots, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
130	O. P., Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Wether under 1 year.														
	No award, Animal not considered worthy.														
131	Derby, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe 2 and under 3 years.														
	FIRST PREMIUM NO. 132—SECOND PREMIUM NO. 133.														
132	Susie, Southdown	3	6	4	..	3	10	2	9	2	10	1	4	1	6
133	Lady, Southdown	3	5	3	11	3	10	2	7	2	9	1	2	1	5
	Ewe 1 and under 2 years.														
	FIRST PREMIUM NO. 134—SECOND PREMIUM NO. 135.														
134	Jennie, Shropshiredown	3	3	4	6	4	3	2	11	3	..	1	4	1	6
135	Beauty, Southdown	3	1	3	10	3	8	2	6	2	7	1	3	1	3
136	Jenny, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe under 1 year.														
	FIRST PREMIUM NO. 138—SECOND PREMIUM NO. 137.														
137	Lady Down, Shropshiredown	2	10	3	6	3	7	2	6	2	7	1	3	1	5
138	May, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
139	Alice, Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Lot 15—Fine Wools.														
	Wether 2 and under 3 years.														
	SECOND PREMIUM NO. 140.														
140	Jim, Merino	3	5	3	10	3	10	2	6	2	8	1	4	1	5
	Wether 1 and under 2 years.														
	SECOND PREMIUM NO. 141.														
141	Jake, Merino	3	2	3	6	3	6	2	5	2	7	1	3	1	5
142	Sam, Merino	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Wether under 1 year.														
	No award, Animal not considered worthy.														
143	Billy, Merino	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of Carcass		Heart girth		Flank girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank	
		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	Ewe 2 and under 3 years.														
	SECOND PREMIUM NO. 144.														
144	Nancy, Merino	2	9	3	7	3	7	2	3	2	4	1	1	1	2
145	Sarah, Merino	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe 1 and under 2 years.														
	No award, Animals not considered worthy.														
146	Mary, Merino	..	..	..	..	..	..	..	..	..	..	..	..	..	..
147	Jenny, Merino	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe under 1 year.														
	NO ENTRIES.														
	Lot 16—Grades or Crosses.														
	Wether 2 and under 3 years.														
	FIRST PREMIUM NO. 150—SECOND PREMIUM NO. 151.														
148	Damond, Grade Shropshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..
149	Billy, Grade Shropshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..
150	Cross, Grade Cotswold	3	5	4	10	4	6	2	11	3	..	1	2	1	4
151	Ben, Grade Southdown	3	3	4	3	4	1	2	10	2	11	1	4	1	7
152	Bud, Grade Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
153	Lucky, Grade Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
154	Sam, Grade Southdown	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Wether 1 and under 2 years.														
	FIRST PREMIUM NO. 157—SECOND PREMIUM NO. 158.														
155	Arkel, Grade Southdown	3	8	4	5	4	5	3	..	3	2	1	4	1	6
156	Warrior, Grade Shropshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..
157	Professor, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..
158	Rugby, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Wether under 1 year.														
	FIRST PREMIUM NO. 160—SECOND PREMIUM NO. 159.														
159	Zeb, Grade Shropshire	3	1	4	..	3	9	2	7	2	9	1	3	1	5
160	Fred, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..
161	Robin, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe 2 and under 3 years.														
	FIRST PREMIUM NO. 162.														
162	Lady Brown, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Ewe 1 and under 2 years.														
	FIRST PREMIUM NO. 163.														
163	Jane, Grade Cotswold	3	3	4	2	4	1	2	10	2	10	1	1	1	8

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements.						Height from Ground.											
		Length of Carcass		Heart girth		Flank girth		Top line.				Bot. line.							
								Should'r		Hip		Fore flank				Flank			
		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	Ewe under 1 year.																		
	FIRST PREMIUM NO. 164—SECOND PREMIUM NO. 166.																		
164	Susan, Shropshire and Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
165	Minnie, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
166	Ann, Grade Oxford	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Lot 19—Heaviest Fat Sheep.																		
	PREMIUM NO. 167.																		
167	Hanlan, Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
168	Lady Swanswick, Cotswold	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of carcass		Heart girth		Flank girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank		Depth from top line to lower shoulder point		Thickness through the crop		Length of back from top of shoulder to loin		Width across the loins		Length of quarter from rump to loin		Depth from loin to hock		Girth of paunch (middle)		Girth of throat latch	
		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
	CLASS D—SWINE.																														
	Lot 22—Berkshires.																														
	Barrow 1 and under 2 years.																														
	NO ENTRIES.																														
	Barrow under 1 year.																														
	NO ENTRIES.																														
	Sow 1 and under 2 years.																														
	FIRST PREMIUM, No. 218.																														
218	Lady Squire	3	10	5	1	5	..	2	10	2	8	..	7	..	8	2	2	1	6	2	1	1	5	1	2	2	4	5	2	3	11
	Sow under 1 year.																														
	NO ENTRIES.																														
	Lot 23—Poland China.																														
	Barrow 1 and under 2 years.																														
	FIRST PREMIUM NO. 220—SECOND PREMIUM NO. 221																														
219	McGee																														
220	Garfield	4	5	5	4	5	2	2	9	2	9	..	9	..	11	2	..	1	7	2	3	1	5	1	4	2	5	5	6	3	6
221	Arthur	4	7	5	7	5	5	2	10	2	9	..	8	..	10	1	10	1	8	2	5	1	8	1	5	2	3	5	7	3	4

	Barrow under 1 year.																														
	FIRST PREMIUM NO. 222—SECOND PREMIUM NO. 223																														
222	Black Prince	3	6	4	3	4	6	2	3	2	6	..	9	..	10	1	9	1	4	1	2	1	1	1	1	2	1	4	9	3	1
223	Eclipse	3	2	3	10	4	..	2	1	2	4	..	9	..	10	1	7	1	....	1	10	1	....	1	....	1	11	4	2	3	....
	Sow 1 and under 2 years.																														
	FIRST PREMIUM NO. 224.																														
224	Jenny Lind	4	2	5	2	5	1	2	7	2	9	..	10	..	10	1	8	1	5	2	5	1	5	1	3	2	3	5	2	3	4
	Sow under 1 year.																														
	FIRST PREMIUM NO. 225—SECOND PREMIUM NO. 226																														
225	Topsy	3	9	4	7	4	7	2	6	2	7	..	10	..	10	1	6	1	3	2	1	1	2	1	1	1	11	4	10	3	10
226	Belle Douglas	3	..	3	11	3	11	2	..	2	3	..	8	..	8	1	3	1	1	1	10	1	1	1	8	....	11	4	2	2	9
227	May Douglas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Lot 24—Chester White.																														
	Barrow 1 and under 2 years.																														
	NO ENTRIES.																														
	Barrow under 1 year.																														
	FIRST PREMIUM NO. 229—SECOND PREMIUM NO. 228																														
228	George	2	9	3	6	3	6	2	3	2	2	..	9	..	10	1	4	....	10	1	7	....	10	....	9	1	7	3	9	3	....
229	Billy	3	5	4	7	4	3	2	3	2	8	..	10	1	..	1	7	1	4	1	6	1	....	1	2	2	1	4	10	3	9
	Sow 1 and under 2 years.																														
	FIRST PREMIUM NO. 230.																														
230	Betsey	3	5	4	..	4	1	2	3	2	6	..	10	1	..	1	7	1	1	1	8	1	1	1	1	2	1	4	7	3	2
	Sow under 1 year.																														
	FIRST PREMIUM NO. 232—SECOND PREMIUM NO. 231																														
231	Maggie	4	1	4	8	4	5	2	8	2	10	..	10	..	11	1	10	1	4	2	....	1	3	1	2	2	3	4	10	3	8
232	Nellie	3	11	4	5	4	4	2	6	2	7	..	10	..	11	1	9	1	2	2	1	1	2	1	....	2	1	4	9	3	6
	Lot 25—Essex.																														
	NO ENTRIES.																														

Table of Measurements, Etc.—Continued.

No. of Animal	Class, Lot and Name of Animal.	Measurements. Length of carcass		Heart girth		Flank girth		Height from Ground. Top line. Should'r		Hip		Bot. line. Fore flank		Flank		Depth from top line to lower shoulder point		Thickness through the crop		Length of back from top of shoulder to loin		Width across the loins		Length of quarter from rump to loin		Depth from loin to hock		Girth of paunch (middle)		Girth of throat latch	
		Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In
	Lot 26—Grades or Crosses.																														
	Barrow 1 and under 2 years.																														
	FIRST PREMIUM NO. 234—SECOND PREMIUM NO. 233																														
233	Billy, grade Poland	3	9	5	4	5	4	2	10	2	8	..	10	..	10	2	....	1	7	2	1	1	5	1	1	2	2	5	6	4	....
234	Hancock, grade Berkshire	4	5	5	3	5	3	2	10	2	10	..	9	..	9	2	3	1	8	2	5	1	5	1	2	2	5	5	5	4	2
	Barrow under 1 year.																														
	FIRST PREMIUM NO. 236—SECOND PREMIUM NO. 237																														
236	Prince Albert, grade Victoria	3	6	4	10	4	10	2	5	2	7	..	8	..	9	1	10	1	5	2	1	1	2	1	2	2	2	5	2	3	10
237	Prince Alfred, grade Victoria	4	1	4	6	4	7	2	7	2	8	..	9	..	9	1	10	1	5	1	11	1	4	1	4	2	1	4	8	3	7
	Sow 1 and under 2 years.																														
	FIRST PREMIUM NO. 239—SECOND PREMIUM NO. 238																														
238	Lady Wilson, grade Suffolk	3	6	4	5	4	1	2	3	2	4	..	8	..	8	1	9	1	5	1	7	1	4	...	11	1	10	4	10	3	8
239	Jenny Lind, grade Suffolk	3	6	4	7	4	7	2	5	2	6	..	9	..	10	1	10	1	3	1	10	1	2	1	1	1	11	4	8	4	....
	Sow under 1 year.																														
	FIRST PREMIUM NO. 241—SECOND PREMIUM NO. 240																														
240	Beauty, grade Victoria	4	1	4	9	4	8	2	6	2	5	..	7	..	7	1	11	1	7	2	....	1	4	1	2	2	1	5	2	4	1
241	Topsy, grade Victoria	3	8	4	5	4	4	2	6	2	6	..	7	..	7	1	11	1	6	2	....	1	4	....	11	2	....	4	9	3	8

REPORTS OF AWARDING COMMITTEES.

CLASS A—CATTLE.

LOT 1—SHORTHORN—THOROUGHBRED.

Steer 3 and under 4 years.

No.	Exhibiter.	Age in days, Nov. 11, 1880	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Steer.
1	Wm. Sandusky, Catlin, Ill.	1,367	2,350	1.71	Vermilion
2	John D. Gillett, Elkhart, Ill.	1,305	2,125	1.62	Oglesby
3	John D. Gillett, Elkhart, Ill.	1,280	2,000	1.56	Beveridge
4	John D. Gillett, Elkhart, Ill.	1,250	2,215	1.77	Cullom
	Average	1,300	2,172	1.66	

First premium, $25, to steer Vermilion, exhibited by William Sandusky, of Catlin, Ill.
Second premium, $15, to steer Cullom, exhibited by J. D. Gillett, of Elkhart, Ill.

REPORT OF COMMITTEE.

This ring was composed of four thoroughbred Shorthorn steers, showing unusual development for age, and averaging 2,172 pounds. Showing a gain per day of 1.66 pounds since birth.

The steers were evenly matched, and showed the result of good breeding and handling. Considering the age and weight of the steers, they were very smooth and free from patches and evenly covered with thick meat of extra quality.

The steer Vermilion was awarded the first premium, and greatly excelled in the following particulars: Small, neat head and neck, fineness of bone, with thick, broad and long loin; shoulders full and in good proportion with hind quarters; well flanked down; broad and full in round; well meated down to hock and gambriel joint, with even top and bottom lines. The steer had small brisket in proportion to size, and was better filled behind the arm than his competitors. The second premium steer, Cullom, was a very superior animal, rather heavier in head and neck than the animal awarded first premium, not as well filled in loin and in fore quarter, or as smooth as the steer Vermilion; voted the first place.

Shorthorn Steer 2 and under 3 years.

No.	Exhibiter.	Age in days, Nov. 11, 1880	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Steer.
5	J. S. Highmore, Rochester, Ill	782	1,560	1.99	Robin Hood
6	John B. Sherman, Chicago, Ill	1,064	815	1.70	Boynton
7	John B. Sherman, Chicago, Ill	952	1,880	1 97	Morris
8	John B. Sherman, Chicago, Ill	908	1,825	2.01	Belmont
9	Wm. Sandusky, Catlin, Ill	1,005	1,925	1.91	Abe Renic
	Average	942	1,801	1.92	

First premium, $25, to steer Boynton, exhibited by John B. Sherman, Chicago, Ill.
Second premium, $15, to steer Belmont, exhibited by John B. Sherman, Chicago, Ill.

REPORT OF COMMITTEE.

The five finely bred steers shown in this ring were well proportioned throughout, with the most desirable distribution of meat for the butcher and consumer.

The ages and weight of the steers in the ring conclusively prove unusual development for age, which taken into consideration with the size, form and ripeness of the lot, indicate the value of the improved breeds of cattle for early maturity and quality. The steer awarded the first premium had the best back and loin; the flesh was mellow and thicker than on either of his competitors, and more evenly distributed in best cuts. This steer had a small, neat head and neck, was fine in bone, with short leg and small brisket in proportion to size and weight of the steer. Top and bottom lines straight.

The animal awarded second premium very nearly approached the first-premium steer, in points of excellence; was hardly as well filled back of shoulder, rather coarser in bone, with not as thick meat on back and loin.

Shorthorn Steer 1 and under 2 years.

No.	Exhibiter.	Age in days Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Steer.
10	John S. Highmore, Rochester, Ill	721	1,590	2.20	Corporal

First premium $25, to steer Corporal, bred and exhibited by J. S. Highmore, Rochester, Illinois.

REPORT OF COMMITTEE.

The steer exhibited in this ring showed evidence of good breeding and feeding, and only requires continued good handling to make a butcher's steer of great excellence. The steer had a long loin, and rib well covered with thick mellow flesh of good quality; small head and neat, short neck; well filled quarters, and nicely proportioned throughout. Considering the age, the steer is a good handler, with thick mellow flesh evenly distributed in the best parts of the carcass.

Shorthorn Cow 3 years old or over.

No.	Exhibiter.	Age in days Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Cow.
11	R. Geo. Dun, Mechanicsburg, O	4,266	1,455	.34	Grand Chunk
12	W. Scott, Wyoming, Ill	2,692	1,690	.62	Maggie 4th
13	W. Scott, Wyoming, Ill	2,136	1,710	.80	Forest Queen 2d
	Average	3,031	1,618	.59	

First premium, cow Forest Queen 2nd, exhibited by W. Scott, Wyoming, Illinois.
Second premium, cow Grand Chunk, exhibited by R. Geo. Dun, of Mechanicsburg, Ohio.

REPORT OF COMMITTEE.

The three cows entered in this ring were very creditable specimens of the breed, with considerable difference as to size, age and general conformation.

The cow awarded the first premium was a remarkably large, handsome, smooth animal, with thick mellow flesh, evenly laid on and well distributed. The cow was the youngest and heaviest animal in the ring; very free from patches, and fine in bone. The small head; neat, short neck; well-packed back and loin; heavy, well-filled, thick quarters, and handling qualities of the cow, are seldom excelled.

The second-premium cow was well advanced in years, and showed evidence of having been a breeder. The cow had a very broad, well-filled back; was rather patchy, and would not cut to the greatest profit to the butcher, but would doubtless net an unusually large proportion of meat to gross weight, of medium quality. The cow is a blocky, compact animal, mounted on short fine limbs, with small head, short neck, and evidently well bred, with good feeding qualities.

Hereford Steer, 3 and under 4 years.

No.	Exhibiter.	Age, in days, Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day, in pounds, since birth	Name of Steer.
14	T. L. Miller, Beecher, Ill	1,183	1,875	1.58	Alex

First premium to steer Alex, exhibited by T. L. Miller, Beecher, Ill.

REPORT OF COMMITTEE.

The only steer in this ring was as smooth as a cushion, with very broad, long and thick loin, covered with thick, mellow, well-marbled flesh; handling qualities of great excellence. The long, thick well-filled quarters were in good proportion and supported on short legs.

The steer had a short, dished-face, neat head, short neck, well cut up in throat-latch, with very little coarse, low-priced meat, and would dress to great profit, with a very small proportion of unsaleable meat. The steer was very fine in bone, full and thick in crops, with well-filled brisket, flanked low down, low in twist, heavy, thick round, with meat well down to hock and gambriel-joint.

Hereford Steer 2 and under 3 years.

No.	Exhibiter.	Age, in days, Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day, in pounds, since birth	Name of Steer.
15	T. L. Miller, Beecher, Ill	1,079	1,865	1.73	General
16	T. L. Miller, Beecher, Ill	866	1,650	1.91	Will
17	T. L. Miller, Beecher, Ill	884	1,700	1.92	Washington
	Average	943	1,738	1.85	

First premium $25, to steer Will, exhibited by T. L. Miller, Beecher, Ill.
Second premium $15, to steer Washington, exhibited by T. L. Miller, Beecher, Ill.

REPORT OF COMMITTEE.

The steers entered in this ring were fine specimens of the breed, evenly matched as to form, weight and general appearance, and well matured, for age.

The steer awarded the first premium was much superior to the other animals in the ring, with rather thicker, broader and longer loin, thicker in the crops, and more evenly covered with thick, mellow flesh on the standing rib. This steer was flanked low down, with quarters heavily loaded down to hock and gambriel-joint. The short, neat neck, broad and square brisket, fine bone, short leg, indicated that the steer would dress a large proportion of net to gross. The rump was broad and square and unusually well filled for the breed. The thin, mellow skin and splendid handling qualities gave assurance of the great superiority of this steer for the butcher and critical customer.

The second premium steer was not as good in loin, and was rather lighter in shoulder, and was not as well filled in rump.

Hereford Steer 1 and under 2 years.

No.	Exhibiter.	Age, in days, Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day, in pounds, since birth	Name of Steer.
18	G. S. Burleigh, Mechanicsville, Iowa	710	1,115	1.57	Advance

First premium $25, to steer Advance, bred and exhibited by G. S. Burleigh, Mechanicsville, Iowa.

REPORT OF COMMITTEE.

The steer was very compact, blocky, short-legged animal, with superior handling qualities, indicating maturity and ripeness of flesh, seldom seen in steers of the age. The deep, broad loin, well-sprung ribs, square and deep brisket, were noticeable. The steer had a small, neat head, short neck, straight top and bottom line; was well let down in twist, with heavy, long quarters, thickly meated down to hock and gambriel-joint. The soft, heavy coat of hair, thin, mellow skin and handling qualities, were very superior. Considering the age, the steer would cut an unusually large proportion of net to gross.

Hereford Cow 3 years old or over.

No.	Exhibiter.	Age, in days, Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day, in pounds, since birth	Name of Cow.
19	T. L. Miller, Beecher, Ill	1,350	1,720	1.27	Maid Orleans

First premium $25, to cow Maid Orleans, bred and exhibited by T. L. Miller, Beecher, Ill.

REPORT OF COMMITTEE.

The cow was rather too fat to cut to the greatest profit to the butcher, and the percentage of fat to lean meat would not make the cow cut to the best advantage for the consumer, admitting that the animal would dress an unusually large proportion of net to gross.

The cow has a very thick, short loin; was heavily quartered, and well meated down to hock. She had small head, short, neat neck, fine bone, and was good through the crops, but rather narrow across the rump. The handling qualities and appearance of the cow indicated that she had been fed rather past her maturity for furnishing the best quality of meat of the consumer.

Devon Steer 3 and under 4 years.

No.	Exhibiter.	Age in days Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Steer.
22	Thos. Bidwell, Gurnee, Ill	1,305	1,270	.97	Major
23	Thos. Bidwell, Gurnee, Ill	1,355	1,170	.89	Broad
	Average	1,330	1,220	.93	

First premium $25, to steer Major, bred and exhibited by Thos. Bidwell, Gurnee, Ill.
Second premium $15, to steer Broad, bred and exhibited by Thos. Bidwell, Gurnee, Ill.

REPORT OF COMMITTEE.

There were only two entries in this ring, and either of the steers would please the particular butcher and critical consumer. The steers were well matured and in prime condition for the block, with excellent handling qualities; furnishing evidence of a large proportion of fine grained, lean meat to gross weight. The steers were evenly mated; the animal awarded the first premium was filled lower down in twist than the other steer, and rather better handler. The quality and distribution of flesh, in both steers, could be improved but little.

Devon Steer 2 and under 3 years.

No.	Exhibiter.	Age in days Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Steer.
24	L. F. Ross, Avon, Ill	849	1,250	1.46	Honest Tom

First premium $25, to steer Honest Tom, bred and exhibited by L. F. Ross, Avon, Ill.

REPORT OF COMMITTEE.

There was but one entry in this ring; a very handsome, well-proportioned steer: giving great promise for a profitable butcher's beast.

LOT 5—GRADES OR CROSSES.

Steers 3 and under 4 years.

No. Animal.	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
37	C. M. Culbertson, Chicago	1,310	1,875	1.43	Mossy Coat	Grade Hereford
38	C. M. Culbertson, Chicago	1,305	1,735	1.33	Uphorns	¾ Hereford
39	J. H. Graves, Chilesburg, Ky.	1,411	2,030	1.44	Morrow	Grade Shorthorn
40	J. G. Willard & Son, Harriston	1,305	1,950	1.49	Pickrell	" "
41	J. G. Willard & Son, Harriston	1,300	1,895	1.45	Stookey	" "
42	J. G. Willard & Son, Harriston	1,295	1,775	1.37	Ayman	" "
43	A. F. Moore, Polo, Ill.	1,197	2,005	1.67	Frank	" "
44	John D. Gillett, Elkhart, Ill.	1,183	2,020	1.70	Black Hawk	" "
45	John D. Gillett, Elkhart, Ill.	1,305	2,085	1.59	Osceola	" "
46	John D. Gillett, Elkhart, Ill.	1,244	2,090	1.68	Tecumseh	" "
47	John D. Gillett, Elkhart, Ill.	1,244	1,770	1.42	Phillip	" "
48	John D. Gillett, Elkhart, Ill.	1,244	2,000	1.60	Logan	" "
49	John D. Gillett, Elkhart, Ill.	1,275	2,035	1.59	Uncas	" "
50	John D. Gillett, Elkhart, Ill.	1,275	1,880	1.47	Mohawk	" "
51	John D. Gillett, Elkhart, Ill.	1,275	2,000	1.56	Pontiac	" "
52	John D. Gillett, Elkhart, Ill.	1,183	2,000	1.69	Capt. Jack	" "
53	John D. Gillett, Elkhart, Ill.	1,183	1,925	1.62	Modoc	" "
54	John D. Gillett, Elkhart, Ill.	1,275	1,576	1.23	Chub	" "
	Average	1,267	1,924	1.52		

First premium $25, to steer Morrow, exhibited by J. H. Graves, of Chilesburg, Ky.

Second premium $15, to steer Mossy Coat, exhibited by C. M. Culbertson, of Chicago, Ill.

REPORT OF COMMITTEE.

The large number of choice, well matured steers entered in this ring were, as a lot, in prime condition for the block, reflecting much credit upon the breeders and feeders, who are worthy of the highest commendation.

There was scarcely a medium animal in the ring, and for such maturity were remarkably smooth steers, free from bunches or patches on any part of the carcass. Among so many superior, thick meated, well proportioned, evenly mated bullocks it was very difficult to make a decision. All gave evidence of vigorous health and good feeding qualities. The first premium steer was finer in bone, with smaller head in proportion to weight than his competitors, with short, neat neck and handling qualities that gave assurance of a larger percentage of choice meat, to gross weight, than in any of his rivals. This steer had straight top and bottom lines, heavy, well proportioned quarters, broad, long and deep loin; smooth, wide, well filled rump; was well let down in flank and twist, and thickly meated down to hock and gambriel-joints. A better proportioned steer, more evenly covered with thick meat in the most valuable portions of the carcass, is seldom seen.

The second premium steer was a most worthy rival to the animal awarded the highest honors in the ring, and the broad back, thick loin, extra well filled rump, went far to make up for the want of proportion between the heavy fore and corresponding light hind quarters. The second premium steer was not as smooth as the first prize winner, and was heavier in head, horn and neck.

LOT 5—GRADES OR CROSSES.

Steers 2 and under 3 years.

No.	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
61	J. H. Potts & Son, Jack'ville	921	1,700	1.84	Fred	Grade Shorthorn.
62	John B. Sherman, Chicago	879	1,705	1.93	Jim Blaine	" "
63	John B. Sherman, Chicago	849	1,590	1.75	Douglas	" "
64	Wm. Sandusky, Catlin, Ill	979	1,932	1.97	Richards	" "
65	T. L. Miller, Beecher, Ill	852	1,650	1.93	Putnam	Grade Hereford
66	T. L. Miller, Beecher, Ill	832	1,565	1.88	Rob Roy	" " "
67	T. L. Miller, Beecher, Ill	832	1,845	2.21	Conqueror	" " "
68	T. L. Miller, Beecher, Ill	832	1,775	2.13	Batchelor	" " "
69	A. F. Moore, Polo, Ill	940	1,900	2.02	Hawks	Grade Shorthorn.
70	John D. Gillett, Elkhart, Ill	910	1,785	1.96	Clare S. Reed	" "
71	John D. Gillett, Elkhart, Ill	910	1,815	1.99	Albert Pell	" "
72	John D. Gillett, Elkhart, Ill	940	1,975	2.10	Blood	" "
73	John D. Gillett, Elkhart, Ill	971	1,805	1.85	McMullin	" "
74	John D. Gillett, Elkhart, Ill	1,000	1,720	1.72	Blackstone	" "
75	John D. Gillett, Elkhart, Ill	879	1,600	1.82	Jim Smith	" "
76	John D. Gillett, Elkhart, Ill	910	1,605	1.76	Charlton	" "
77	John D. Gillett, Elkhart, Ill	910	1,550	1.70	Whipple	" "
78	John D. Gillett, Elkhart, Ill	910	1,715	1.88	Vaughan	" "
79	John D. Gillett, Elkhart, Ill	910	1,485	1.63	Blank	" "
80	John D. Gillett, Elkhart, Ill	924	1,720	1.86	Governor	" "
	Average	904	1,721	1.89		

First premium $25; steer Hawks, bred and exhibited by A. F. Moore, Polo, Ill.

Second premium $15; steer Fred, bred and exhibited by J. H. Potts & Son, Jacksonville, Ill.

REPORT OF COMMITTEE.

The steers in this ring showed the advantage of using bulls of the improved breeds noted for early maturity and the most profitable distribution of meat. The steers were fine in bone, with even top and bottom line; well matured, for age, and with few exceptions smooth and even throughout. The large average gain per day of the entire ring and the handling qualities indicated profitable feeding qualities, and the well-packed backs leave no doubt as to the desirable quality of meat they would furnish the consumer and the small percentage of waste to the butcher. Another year's feeding would improve the quality of some of the steers.

AWARDS.

The first-premium steer had very straight top and bottom lines; small, light head and horns; fine in bone; mounted on short legs; short, neat neck; broad, well-filled back; with loin thicker than any of his competitors. This steer was fuller and more even behind the arm, with better-filled rump, and was well proportioned throughout with heavy, well-filled quarters.

The second-premium steer was not as well filled in the rump; was rather coarser and heavier in bone; not as good handler, and was not as well filled in twist. With more feeding, this steer would make a very superior butcher's steer.

LOT 5—GRADES OR CROSSES.

Steers 1 and under 2 years.

No. Animal.	Exhibiter.	Age, in days.	Weight Nov. 11, 1881.	Average gain per day, in pounds, since birth.	Name of Animal.	Breed.
81	Cobb & Phillips, Kankakee, Ill	585	1,450	2.47	Sibley	Grade Shorthorn
82	Cobb & Phillips, Kankakee, Ill	572	1,340	2.34	Logan	" "
83	L. F. Ross, Avon, Ill	618	990	1.60	Bill Young	Grade Devon
84	G.S.Burleigh, Meehan'ville, Io	643	1,245	1.93	Monroe	Hereford-Sh'rt'n.
85	G.S.Burleigh, Mechan'ville, Io	594	1,395	2.34	Gleason	" "
86	T. L. Miller, Beecher, Ill	696	1,580	2.27	Kansas	" "
87	A. F. Moore, Polo, Ill	648	1,420	2.19	Fred	Grade Hereford
88	John D. Gillett, Elkhart, Ill	634	1,228	1.93	Clincher	Grade Shorthorn
89	John D. Gillett, Elkhart, Ill	545	1,300	2.38	Clein	" "
90	John D. Gillett, Elkhart, Ill	725	1,328	1.83	Cider	" "
91	John D. Gillett, Elkhart, Ill	514	1,155	2.24	Chip	" "
92	John D. Gillett, Elkhart, Ill	545	1,100	2.02	Cherry	" "
93	John D. Gillett, Elkhart, Ill	575	1,115	1.93	Chance	" "
94	John D. Gillett, Elkhart, Ill	453	1,220	2.69	Change	" "
95	John D. Gillett, Elkhart, Ill	453	1,025	2.26	Cheap	" "
96	John D. Gillett, Elkhart, Ill	696	1,175	1.68	Chap	" "
97	John D. Gillett, Elkhart, Ill	514	1,250	2.43	Cash	" "
98	John D. Gillett, Elkhart, Ill	514	1,250	2.43	Cloud	" "
99	John D. Gillett, Elkhart, Ill	422	1,104	2.61	Robinson Crusoe	" "
100	D. M. Moninger, Abion, Iowa	671	1,395	2.07	Perfection	" "
101	J. D. Gillett, Elkhart, Ill	685	1,440	2.10	Crash	" "
102	J. D. Gillett, Elkhart, Ill	688	1,880	2.73	Porter	" "
	Average	590	1,290	2.20		

First premium $25, to steer Perfection, exhibited by D. M. Moninger, Albion, Iowa.
Second premium, $15, to steer Kansas, exhibited by T. L. Miller, Beecher, Illinois.

REPORT OF COMMITTEE.

The ring was composed of a grand lot of youngsters, showing remarkable development for age and superior skill on the part of the breeder and feeder. The steers most creditable represented the leading beef breeds, and only needed age and continued good feeding to ensure butchers' stock of great excellence.

The first-premium steer was a high-grade Shorthorn, and nearly approached a model of a bullock for the block, with small, neat head, short neck, fine in bone, straight top, bottom and side lines, with good coat of soft hair, mellow skin and a fine handler. For a young animal, the steer was well covered with thick meat, and the length of barrel was noticeable. The well-sprung ribs, and length and thickness of loin, were not approached by his competitors. The forequarters were in good proportion to the hindquarters, and were well filled, especially in the round.

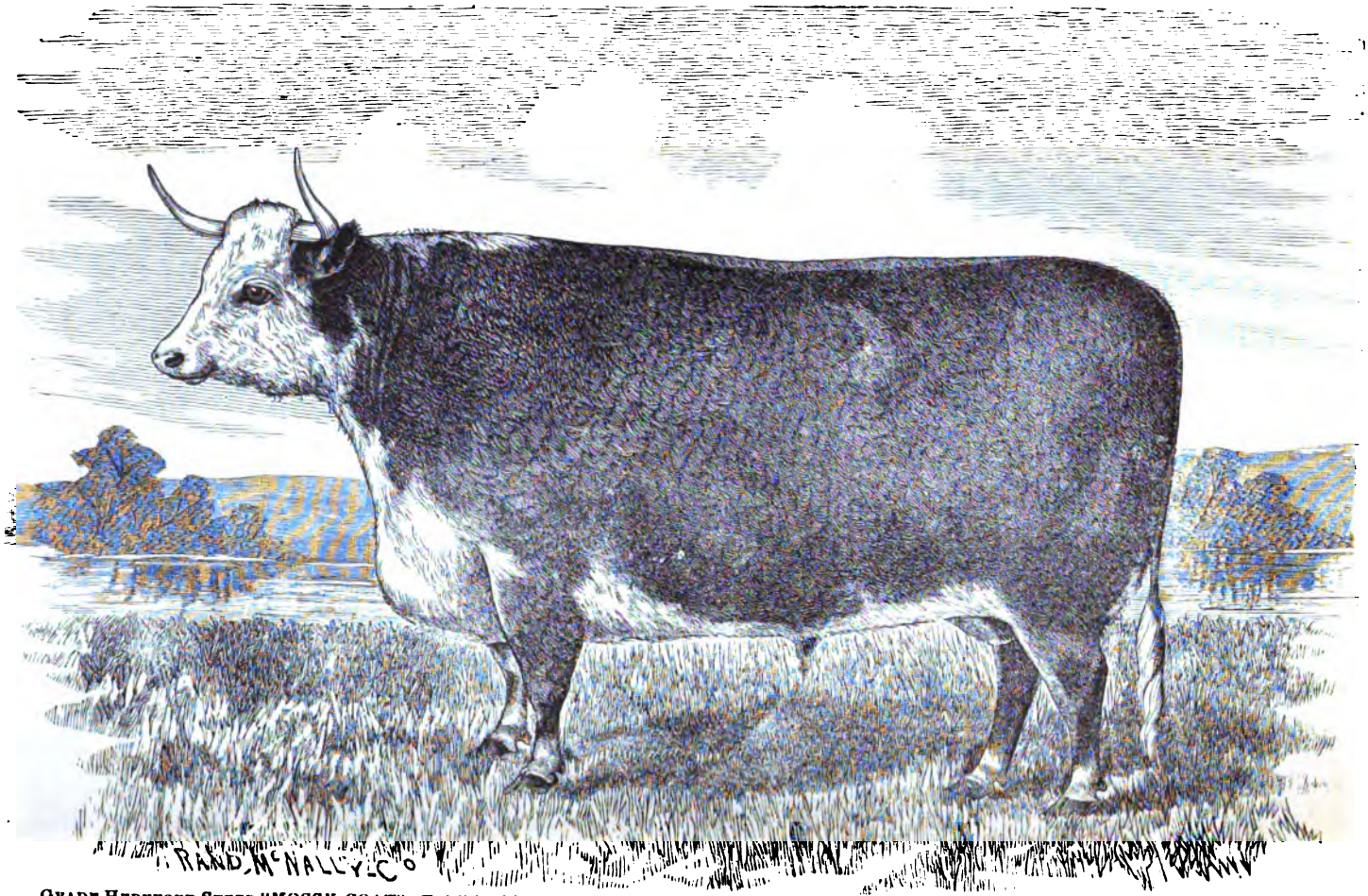
The second-premium steer was a very superior and attractive animal, showing better development, for age, than the first-premium steer, but was heavier in bone, with thicker, heavier neck, and lighter hindquarters, in proportion to forequarters, and the meat was not as evenly distributed over the loin and ribs.

LOT 5—COWS.

Cows 3 years old or over.

No Animal.	Exhibiter.	Age, in days.	Weight Nov. 11, 1880.	Average gain per day, in pounds, since birth.	Name of Animal.	Breed.
103	H. A. Bassett, Jefferson, Ill	4,225	1,770	0.41	Spot	¾ Shorthorn

First premium $25, to cow Spot, exhibited by H. A. Bassett, Jefferson, Ill.



GRADE HEREFORD STEER "MOSSY COAT"—Exhibited by C. M. CULBERTSON, Chicago, Ill. Awarded Sweepstakes Premium, Fat Stock Show 1880.
Age: 3 and under 4 years.

REPORT OF COMMITTEE.

There was but one entry in this ring—a large, well-fleshed cow, with good hindquarters and rather light forequarters, and short loin. This old cow had evidently been a good milker, but was not more than a medium butcher's beast.

LOT 6—SWEEPSTAKES RINGS.

Steers 3 and under 4 years.

No. Animal	Name of Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
37	C. M. Culbertson, Chicago, Ill	1,310	1,875	1.43	Mossy Coat	⅞ Hereford.
38	C. M. Culbertson, Chicago, Ill	1,305	1,735	1.33	Uphorns	"
39	J. H. Graves, Chilesburg, Ky.	1,411	2,030	1.44	Morrow	Grade Hereford.
22	Thomas Bidwell, Gurnee, Ill.	1,305	1,270	0.97	Major	Devon.
23	Thomas Bidwell, Gurnee, Ill.	1,355	1,170	0.89	Broad	"
40	J. G. Willard & Son, H'rrist., Ill	1,305	1,950	1.49	Pickrell	Grade Shorthorn
41	J. G. Willard & Son, H'rrist., Ill	1,300	1,895	1.45	Stookey	" "
42	J. G. Willard & Son, H'rrist., Ill	1,295	1,775	1.37	Ayman	" "
1	Wm. Sandusky, Catlin, Ill	1,367	2,350	1.71	Vermilion	Shorthorn.
14	T. L. Miller, Beecher, Ill	1,183	1,875	1.58	Alex	Hereford.
43	A. F. Moore, Polo, Ill	1,197	2,005	1.67	Frank	Grade Shorthorn
46	John D. Gillett, Elkhart, Ill	1,244	2,090	1.68	Tecumseh	" "
48	John D. Gillett, Elkhart, Ill	1,244	2,000	1.60	Logan	" "
51	John D. Gillett, Elkhart, Ill	1,275	2,000	1.56	Pontiac	" "
54	John D. Gillett, Elkhart, Ill	1,275	1,575	1.23	Chub	" "
2	John D. Gillett, Elkhart, Ill	1,305	2,125	1.62	Oglesby	Shorthorn.
3	John D. Gillett, Elkhart, Ill	1,280	2,000	1.56	Beveridge	"
4	John D. Gillett, Elkhart, Ill	1,250	2,215	1.77	Cullom	"
	Average	1,289	1,885	1.46		

Sweepstakes premium, $50 00, to steer Mossy Coat, exhibited by C. M. Culbertson, Chicago, Illinois.

REPORT OF COMMITTEE.

There was considerable difference as to size, conformation and general appearance of the steers in this ring, as might be expected in a ring composed of the various pure breeds of beef cattle and their crosses. The steers were well matured and ripe for the block and, with scarcely an exception, well covered in the best parts with a superior quality of meat. The smoothness of animals and the absence of patches was noticeable as well as the small proportion of meat in the unprofitable portions of the carcass.

The grade Hereford, awarded the sweepstakes premium, had the best handling qualities and was the mellowest, primest and ripest steer in the ring. The steer was fine in bone with rather neat head, short, thin neck, broad, level back, thick loin and well meated along and over the flat rib. The fore-quarters were somewhat heavy in proportion to hind-quarters and the last cut in the round was not quite full enough.

The steer was thickly meated in front of the shoulder and the rump was very well filled; level top and bottom lines and were let down in flank and twist; nicely rounded barrel heavily topped with the choicest meat in the right place and a very small paunch in proportion to the weight of the animal.

LOT 6—SWEEPSTAKES—RINGS.

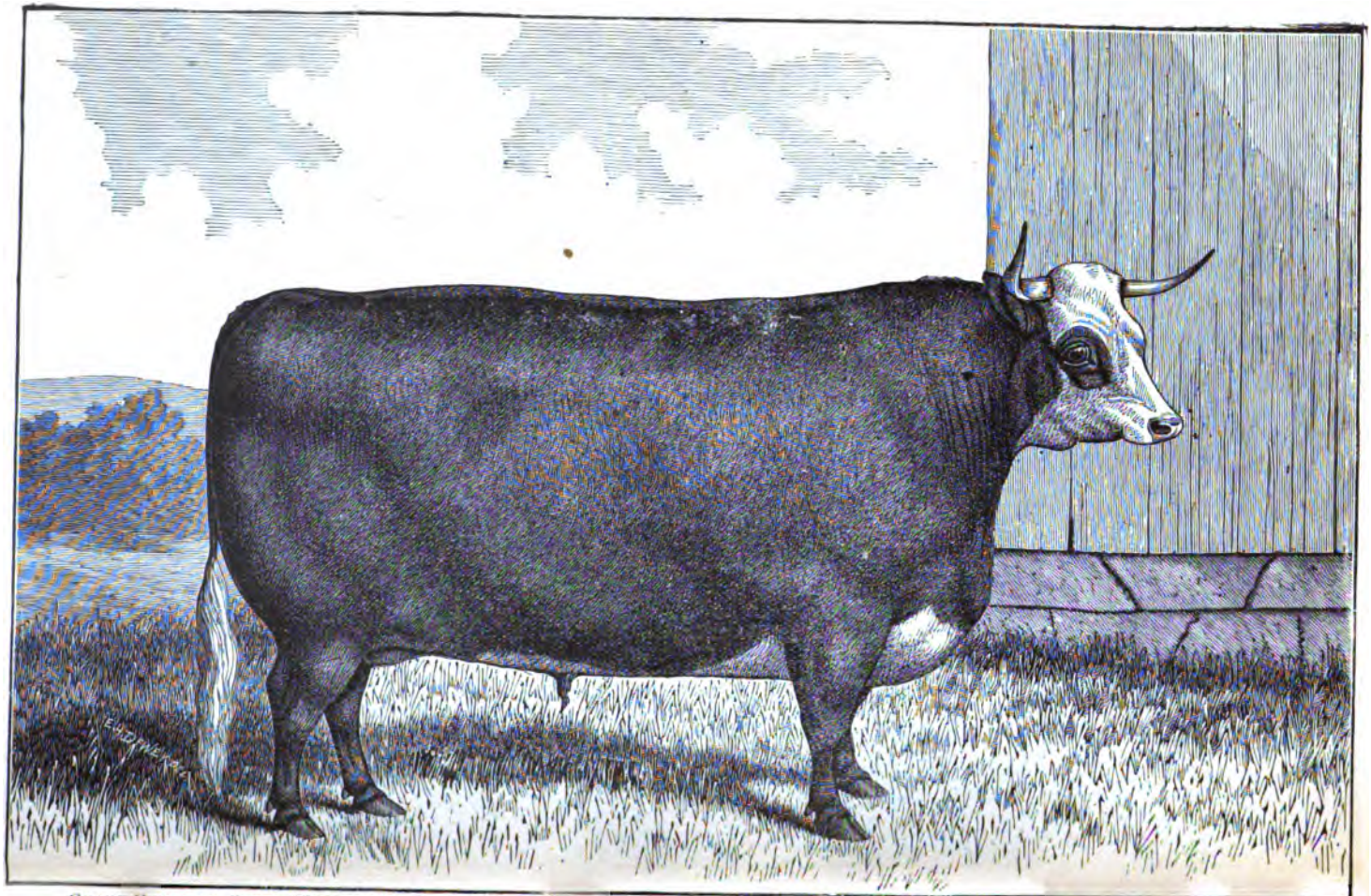
Steers 2 and under 3 years.

No. Animal.	Exhibiter.	Age in days.	Weight, Nov. 11, 1880.	Average gain per day in pounds since birth.	Name of Animal.	Breed.
5	J.S. Highmore, Rochester, Ill.	782	1,560	1.99	Robin Hood	Shorthorn
6	John B. Sherman, Chicago, Ill.	1,064	1,815	1.70	Boynton	"
7	John B. Sherman, Chicago, Ill.	952	1,880	1.97	Morris	"
8	John B. Sherman, Chicago, Ill.	908	1,825	2.01	Belmont	"
62	John B. Sherman, Chicago, Ill.	879	1,705	1.93	Jim Blaine	Grade Shorthorn
61	J.H. Potts & Son, Jacksonville	921	1,700	1.84	Fred	" "
24	L. F. Ross, Avon, Ill.	849	1,250	1.46	Honest Tom	Devon
9	Wm. Sandusky, Catlin, Ill.	1,005	1,925	1.91	Abe Renic	Shorthorn
64	Wm. Sandusky, Catlin, Ill.	979	1,932	1.97	Richards	Grade Shorthorn
15	T. L. Miller, Beecher, Ill.	1,079	1,865	1.73	General	Hereford
67	T. L. Miller, Beecher, Ill.	832	1,845	2.21	Conqueror	Grade Hereford
65	T. L. Miller, Beecher, Ill.	852	1,650	1.93	Putnam	" "
16	T. L. Miller, Beecher, Ill.	866	1,650	1.91	Will	Hereford
69	A. F. Moore, Polo, Ills.	940	1,900	2.02	Hawks	Grade Shorthorn
70	John D. Gillett, Elkhart, Ill.	910	1,785	1.96	Clare S. Reed	" "
71	John D. Gillett, Elkhart, Ill.	910	1,815	1.99	Albert Pell	" "
72	John D. Gillett, Elkhart, Ill.	940	1,975	2.10	Blood	" "
74	John D. Gillett, Elkhart, Ill.	1,000	1,720	1.72	Blacksone	" "
80	John D. Gillett, Elkhart, Ill.	924	1,720	1.86	Governor	" "
17	T. L. Miller, Beecher, Ill.	884	1,700	1.92	Washington	Hereford
68	T. L. Miller, Beecher, Ill.	832	1,775	2.13	Batchelor	Grade Hereford
66	T. L. Miller, Beecher, Ill.	832	1, 65	1 88	Rob Roy	" "
	Average	915	1,752	1.91		

Premium $50, to steer Conqueror, exhibited by T. L. Miller, Beecher, Ill.

REPORT OF COMMITTEE.

The twenty-one steers shown in this ring very nearly approached the highest standard of perfection for profitable butchers' beasts, and a majority of them showed remarkable weight for age, with that fine finish and development to be found only in well bred animals, whose ancestors had been carefully coupled for many generations, for the purpose of developing the essential qualities of a prime bullock. The steers were low and blocky, with well packed backs, fine in bone, and would dress with a very small proportion of offal. As a bunch of cattle, they were thickly and evenly fleshed, and for the age and weight remarkably free from patches. In a ring so evenly mated the most experienced experts might differ as to the comparative merits of each. The Grade Hereford steer, awarded the sweepstakes premium, showed the greatest average gain per day since birth; was fine in bone with small head, short neat neck; better sprung ribs and a long thick loin; straight top and bottom lines. The steer was well matured and ripe for the block, with a skin as well filled with choice cuts as possible to imagine. The steer was well filled and thickly meated down to hock and gambriel-joint, and low and full in twist and mounted on short legs.



GRADE HEREFORD STEER "CONQUEROR"--Exhibited by T. J. Miller, Boodhur, Ill. Awarded Sweepstakes-

LOT 6—SWEEPSTAKES RINGS.

Steers 1 and under 2 years.

No.	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
81	Cobb & Phillips, Kan'kee, Ill.	585	1,450	2.47	Sibley	Grade Shorthorn.
82	Cobb & Phillips, Kan'kee, Ill.	572	1,340	2.34	Logan	" "
10	J. S. Highmore, Rochest'r, Ill.	721	1,590	2.20	Corporal	Shorthorn
83	L. F. Ross, Avon, Ill	618	990	1 60	Bill Young	Grade Devon
18	G.S.Burleigh, Mech'sville, Io.	710	1,115	1.57	Advance	Hereford
84	G.S.Burleigh, Mech'sville, Io.	643	1,245	1.93	Monroe	H'ford & Shorth'n
85	G.S.Burleigh, Mech'sville, Io.	594	1,395	2.34	Gleason	" "
87	A. F. Moore, Polo, Ill	648	1,420	2.19	Fred	Grade Shorthorn.
88	John D. Gillett, Elkhart, Ill	634	1,228	1.93	Clinker	" "
90	John D. Gillett, Elkhart, Ill	725	1,328	1.83	Cider	" "
97	John D. Gillett, Elkhart, Ill	514	1,250	2.43	Cash	" "
100	D. M. Moninger, Albion, Io	671	1,395	2.07	Perfection	" "
101	John D. Gillett, Elkhart, Ill	685	1,440	2.10	Crash	" "
102	John D. Gillett, Elkhart, Ill	688	1,880	2.73	Porter	" "
186	T. L. Miller, Beecher, Ill	696	1,580	2.27	Kansas	Grade Hereford.
	Average	647	1,376	2.13		

Premium $50, to steer Kansas, exhibited by T. L. Miller, Beecher, Ill.

REPORT OF COMMITTEE.

The ring was composed of a very superior lot of yearlings, all showing the results of good breeding and feeding; and the unusual development of a number of the steers has seldom been surpassed, while the average gain per day since birth, of the entire ring, reflects great credit upon all concerned.

The Sweepstakes premium was awarded a grade Hereford steer, of fine form and finish, and well matured, for age; fine in bone; short legs; heavy, well proportioned quarters; good top and bottom lines; well-filled loin; and with meat distributed in best parts.

LOT 6—SWEEPSTAKES RINGS.

Cows 3 years old or over.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
103	H. A. Bassett, Jefferson, Ill	4,225	1,770	0 41	Spot	¾ Shorthorn.
11	R. G. Dun, Mechanicsburg, O.	4,266	1,455	0.34	Grand Chunk	Shorthorn.
12	W. Scott, Wyoming Ill	2,692	1,690	0.62	Maggie 4th	"
13	W. Scott, Wyoming, Ill	2,136	1,710	0.80	Forrest Queen 2d	"
19	T. L. Miller, Beecher, Ill	1,350	1,720	1.27	Maid Orleans	Hereford.
	Average	2,934	1,669	0.68		

Premium $50 00, to cow Forrest Forest 2d, exhibited by W. Scott, Wyoming, Illinois.

REPORT OF COMMITTEE.

There was no uniformity as to age, size, form and quality with the animals competing in this ring. Some of the animals were very patchy, showed evidence of their usefulness as breeders and heavy milkers, and of having passed their prime for the block, while the non-breeders were in good condition for slaughter, and promised to furnish carcasses of

more than average quality. The red Shorthorn cow, awarded the sweepstakes premium, was more evenly fatted and the meat was firm and mellow and of better quality than the other cows in the ring. The cow had small neat head and horns, short thin well finished neck, light brisket, good back, and loin was fine in bone and would cut with small proportion of unprofitable offal. The cow was wider across the rump, which was well filled, was let well down in flank and twist, and thickly meated down to hock and gambriel-joint.

LOT 7—GRAND SWEEPSTAKES.

OPEN TO ALL.

Best Steer or Cow in the Show.

Premium $100 00, awarded to steer Nichols, exhibited by J. H. Graves, Chilesburg, Ky.

REPORT OF COMMITTEE.

Fifty-eight of the best animals in the show were entered for this grand prize, and twenty-seven head made their appearance in the ring. The various ages and breeds of the steers and cows composing this ring made it difficult to arrive at a satisfactory decision, if age was to be taken into the account. The consideration of the ripest steer with the most profitable distribution of meat of the best quality influenced the committee to award the Grand Sweepstakes premium to the grade Shorthorn steer Nichols.

It would be impossible to make a complete discription of the points of excellence of this remarkably fine butchers' animal, neither could it be appreciated only by critical judges that had carefully examined the steer. The distribution and quality of meat was all that could be desired, and the evidences of dressing a prime carcass with an unusually large proportion of net to gross were unmistakable. This steer was 1701 days old, weighed 2461 pounds, and had made an average gain per day since birth of 1.44. The age of this steer made the animal eligible to only this ring and that for the heaviest steer in the show.

LOT 8—FOR CAR LOADS.

Steers 3 and under 4 years.

CAR No. 1.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
40	J.G.Willard & Son,Harristo'n,Ill.	1,305	1,950	1.49	Pickrell	Grade Shorthorn
41	J.G.Willard & Son,Harristo'n,Ill.	1,300	1,895	1.45	Stookey	" "
42	J.G.Willard & Son,Harristo'n,Ill.	1,295	1,775	1.37	Ayman	" "
55	J.G.Willard & Son,Harristo'n,Ill.	1,290	1,955	1.51	Scroggins	" "
56	J.G.Willard & Son,Harristo'n,Ill.	1,285	1,940	1.51	Burks	" "
57	J.G.Willard & Son,Harristo'n,Ill.	1,280	1,935	1.51	Peck	" "
58	J.G.Willard & Son,Harristo'n,Ill.	1,275	1,980	1.55	Masters	" "
59	J.G.Willard & Son,Harristo'n,Ill.	1,264	1,950	1.54	Chamberlain	" "
	Average	1,286	1,922	1.49		

CAR No. 2.

44	J. D. Gillett, Elkhart, Ill.	1,183	2,020	1.70	Black Hawk	Grade Shorthorn
45	J. D. Gillett, Elkhart, Ill.	1,305	2,085	1.59	Osceola	" "
46	J. D. Gillett, Elkhart, Ill.	1,244	2,090	1.60	Tecumseh	" "
47	J. D. Gillett, Elkhart, Ill.	1,244	1,770	1.42	Phillip	" "
48	J. D. Gillett, Elkhart, Ill.	1,244	2,000	1.60	Logan	" "
49	J. D. Gillett, Elkhart, Ill.	1,275	2,035	1.59	Uncas	" "
50	J. D. Gillett, Elkhart, Ill.	1,275	1,880	1 47	Mowhawk	" "
51	J. D. Gillett, Elkhart, Ill.	1,275	2,000	1.56	Pontiac	" "
	Average	1,255	1,985	1.56		

First premium $150, car load No. 2, exhibited by J. D. Gillett, Elkhart, Ill.
Second premium $75, car load No. 1, exhibited by J. G. Willard & Son, Harristown, Ill.

REPORT OF COMMITTEE.

The steers composing the two car loads of cattle competing in this ring were much above the average in all that goes to make a first-class bullock for the block, and the good feeding qualities not only evinced in the handling, but the large average gain per day made since birth by the sixteen steers exhibited.

The car load awarded the first premium was composed of steers of great uniformity in form, size and markings, and it would be difficult to imagine a more attractive and profitable bunch of cattle for the butcher. The second premium car load was made up of a splendid lot of high grade steers, that had been well fed, and were in prime condition for the block. In matter of quality this car load of cattle was but little, if any, inferior to the first premium lot, but the slight difference in average gain per day since birth, and more uniformity as to size and finish of the steers, were in favor of the first premium lot.

LOT 8—BEST CAR LOAD CATTLE.

Cattle 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.	Breed.
70	J. D. Gillett, Elkhart, Ill	910	1,785	1.96	Clare S. Reed	Grade Shorthorn
71	J. D. Gillett, Elkhart, Ill	910	1,815	1.99	Albert Pell	" "
72	J. D. Gillett, Elkhart, Ill	940	1,975	2.10	Blood	" "
73	J. D. Gillett, Elkhart, Ill	971	1,805	1.85	McMullen	" "
74	J. D. Gillett, Elkhart, Ill	1,000	1,720	1.72	Blackstone	" "
75	J. D. Gillett, Elkhart, Ill	879	1,600	1.82	Jim Smith	" "
76	J. D. Gillett, Elkhart, Ill	910	1,605	1.76	Charlton	" "
77	J. D. Gillett, Elkhart, Ill	910	1,550	1.70	Whipple	" "
78	J. D. Gillett, Elkhart, Ill	910	1,715	1.88	Vaughan	" "
79	J. D. Gillett, Elkhart, Ill	910	1,485	1.63	Blank	" "
	Average	925	1,705	1.84		

First premium $150, to car load exhibited by J. D. Gillett, Elkhart, Ill.

REPORT OF COMMITTEE.

There was but one car load of steers 2 and under 3 years of age entered for the premium, and it is only necessary to call attention to the average age, weight and gain per day since birth to show that all the steers had made a very rapid and profitable growth. All the steers in the bunch were up to a high standard of perfection, with handling qualities that could be improved but little. The small, neat heads, short, thin and nicely tapering necks, broad, straight backs, well filled loins and nicely proportioned quarters, and fineness of bone, were conclusive evidence of the skill and experience of the feeder and breeder in producing the most profitable bullocks for the butcher and consumer.

LOT 8—BEST CAR-LOAD CATTLE.

Cattle 1 and under 2 years.

No. of Animal.	Exhibiter.	Age in days.	Weight Nov. 11, 1880	Average gain per day, in pounds, since birth	Name of Animal.	Breed.
88	J. D. Gillett, Elkhart, Ill	634	1,228	1.93	Clincher	Grade Shorthorn
89	J. D. Gillett, Elkhart, Ill	545	1,300	2.38	Clem	" "
90	J. D. Gillett, Elkhart, Ill	725	1,328	1.83	Cider	" "
91	J. D. Gillett, Elkhart, Ill	514	1,155	2324	Chip	" "
92	J. D. Gillett, Elkhart, Ill	545	1,100	2,02	Cherry	" "
93	J. D. Gillett, Elkhart, Ill	575	1,115	1.93	Chance	" "
94	J. D. Gillett, Elkhart, Ill	453	1,220	2.69	Change	" "
95	J. D. Gillett, Elkhart, Ill	453	1,025	2.26	Cheap	" "
96	J. D. Gillett, Elkhart, Ill	696	1,175	1.68	Chap	" "
97	J. D. Gillett, Elkhart, Ill	514	1,250	2.43	Cash	" "
98	J. D. Gillett, Elkhart, Ill	514	1,250	2.43	Cloud	" "
99	J. D. Gillett, Elkhart, Ill	422	1,204	2.61	Robinson Crusoe	" "
	Average	549	1,187	2.20		

First premium $150, to J. D. Gillett, Elkhart, Ill.

REPORT OF COMMITTEE.

The yearling car load was made up of high-grade Shorthorns, of large growth and excellent quality, and the steers only needed continuance of the same liberal treatment to mature bullocks of great excellence. A number of the steers in the ring have averaged since birth over two and one-half pounds per day, which, when considered with the superior quality and distribution of flesh, makes the production of such cattle very profitable for the feeder and butcher.

LOT 9—DRESSED BULLOCKS.

Weights of various parts of slaughtered Steers.

Age and Name.	Breed.	Weight at home	Live weight Nov. 18, 1880	Dressed weight	Per cent. of net to gross	Left fore quarter	Right fore quarter	Left hind quarter	Right hind quarter	Head	Hide	Feet	Guts	Paunch	Blood shrinkage	Liver, heart, tongue, pluck, beef cheeks	Offal
Steers 3 and und'r 4																	
Mossy Coat	Grade Hereford	1,860	1,812½	1,256	69.29	331	320	300	305	32	104	19	103	161½	75	61½	481
Chub	Grade Shorthorn	1,600	1,512½	1,037½	68.59	285	285	290	237½	27½	87	16½	79	146½	71½	47½	404
Alex	Hereford	1,910	1,850	1,250½	67.59	327½	318	295	310	32½	111	18½	120	184	69½	64	530
Average		1,790	1,725	1,181	68.49	314	308	275	284	27	101	18	1 1	164	72	58	472
Steers 2 and und'r 3																	
Putnam	Grade Hereford	1,652	1,607½	1,050	63.31	272½	272½	256	249	28	90½	16	112	185	65	55	486
Blank	Grade Shorthorn	1,560	1,461	974½	66.70	260	253½	227½	233½	28	90	20	74½	174½	53	47	434
Average		1,606	1,534¼	1,012¼	66.	266¼	263	241¾	241¼	28	90¼	18	93	179	59	51	460
Steers 1 and und'r 2																	
Monroe	H'ford & Shorth'n	1,265	1,217	816½	67.09	206	203½	203½	203½	23	84	15	70½	114	48	46	352½
Cow 3 or over.																	
Grand Chunk	Shorthorn	.....	1,435	917	63.90	.....	.....	.....	.....	21½	70	14	70	256	26	61	518

Steers 3 and under 4 years.

Premium $50; Hereford steer Alex, exhibited by T. L. Miller, Beecher, Ill.

Steers 2 and under 3 years.

Premium $50; grade Shorthorn steer Blank, exhibited by John D. Gillett, Elkhart, Ill.

Steers 1 and under 2 years.

Premium $50; Hereford and Shorthorn steer Monroe, exhibited by G. S. Burleigh, Mechanicsville, Iowa.

REPORT OF COMMITTEE.

Steers 3 and under 4 years.

The three carcasses were too fat to furnish the most profitable proportion of lean meat to the weight of the carcasses for the consumer and there was too much fat to cut to the greatest profit for the butcher. The steers had been fatted too long to get the best results in the way of lean meat, and the forcing process in feeding has had the effect of developing fatty matter too rapidly for the natural growth and development of muscle and lean meat. The undue forcing process in feeding at too early an age with highly concentrated food is at the expense of muscle and quality of the lean meat. The Hereford steer, awarded the premium, had the best formed and proportioned quarters, presented the smoothest carcass, with fat more evenly distributed throughout than the other two carcasses. The fat was of a light creamy color, and the lean was a bright red color well mixed with fat and nicely marbled. The grain of meat was not too fine, but of the most desirable texture to ensure juicy and highly-flavored meat. This steer would give the greatest proportion of eatable food to the weight of dressed carcass on account of thickness and length of loin, with less loss from trimming of fat. He had larger, better filled, round, broader and longer back. The hind-quarter was heavier in proportion to fore-quarter than the other steers. The steer had the greatest proportion of loin and porter-house steak, which returns the butcher the greatest profit and the consumer the most desirable meat. The lean and fat meat were better mixed in the plate and brisket; the brisket was smaller in proportion to the weight.

Steers 2 and under 3 years.

The grade Shorthorn steer, awarded the premium, presented a carcass that would return the butcher the greatest profit and the consumer the most desirable meat of any of the dressed carcasses on exhibition. There was a smaller proportion of fat to lean and the amount of high-priced meat of the best quality was unusually large and seldom, if ever, excelled. The steer was in prime condition for the block, the meat nicely marbled and the loin and tenderloin, in proportion to size, was very large. The grain of meat was finer than in the other carcasses, and the flesh was thicker and more high-flavored. The round was large and well filled down to the gambriel-joint, with well proportioned quarters, and the carcass was not deficient in any particular we have ever seen during many years' experience in cutting and slaughtering. The color was neither too white nor yellow, but of that rich tint indicating the mellowest, ripest and finest meat for the table.

Steers 1 and under 2 years.

The yearling cross-bred Hereford and Shorthorn steer presented the best proportioned carcass throughout of any on exhibition, with exceptionably heavy hind-quarters. Considering the age of the animal the meat was very ripe and of excellent quality. The color was rather too light, owing to the want of age. There was considerable fat in proportion to lean meat, the result of high feeding and want of exercise necessary to develop muscle and lean meat.

LOT 10—HEAVIEST FAT STEER.

No. Animal	Exhibiter.	Age in days	*Weight, Nov. 19, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
28	J. H. Graves, Chilesburg, Ky.	1,701	2,445	1.43	Nichols	Grade Shorthorn
25	John B. Sherman, Chicago, Ill.	2,765	3,130	1.13	Nels Morris	" "
23	L. F. Ross, Avon, Ill	1,711	1,990	1.16	Broad	Devon
26	J. D. Gillett, Elkhart, Ill	1,670	2,460	1.47	Grant	Grade Shorthorn
27	J. D. Gillett, Elkhart, Ill	1,517	2,575	1.69	Sheridan	" "
29	J. D. Gillett, Elkhart, Ill	1,882	2,375	1.26	Sherman	" "
30	J. D. Gillett, Elkhart, Ill	1,670	2,235	1.33	Farragut	" "
31	J. D. Gillett, Elkhart, Ill	1,640	2,375	1.45	Foote	" "
32	J. D. Gillett, Elkhart, Ill	1,517	2,370	1.56	Capt. Nels Morris	" "
33	J. D. Gillett, Elkhart, Ill	1,640	2,075	1.57	Barney	" "
35	J. Weedman, Farmer City, Ill.	2,035	3,075	1.51	Moses	" "
36	A. W. Taylor, Lake Forest, Ill.	2,035	2,430	1.19	Duke	" "
34	E. J. Green, Valparaiso, Ind.	1,505	1,875	1.24	Centennial	" "
	Average	1,791	2,416	1.38		

* Twelve hours off feed and water.

First premium $75, to steer Nels Morris, exhibited by John B. Sherman, Chicago, Ill.
Second premium $50, to steer Moses, exhibited by John Weedman, Farmer City, Ill.

LOT 11—EARLY MATURITY.

Steers 3 and under 4 years.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
39	J. H. Graves, Chilesburg, Ky.	1,411	2,030	1.44	Morrow	Grade Shorthorn
22	Thos. Bidwell, Gurnee, Ill	1,305	1,270	0.97	Major	Devon
23	Thos. Bidwell, Gurnee, Ill	1,355	1,170	0.89	Broad	Devon
1	Wm. Sandusky, Catlin, Ill	1,367	2,350	1.71	Vermilion	Shorthorn
14	T. L. Miller, Beecher, Ill	1,183	1,875	1.58	Alex	Hereford
43	A. F. Moore, Polo, Ill	1,197	2,005	1.67	Frank	Grade Shorthorn
52	John D. Gillett, Elkhart, Ill	1,183	2,000	1.69	Capt. Jack	" "
2	John D. Gillett, Elkhart, Ill	1,305	2,125	1.62	Oglesby	Shorthorn
3	John D. Gillett, Elkhart, Ill	1,280	2,000	1.56	Beveridge	"
4	John D. Gillett, Elkhart, Ill	1,250	2,215	1.77	Cullom	"
	Average	1,211	1,904	1.49		

Premium silver cup, value $25, to steer Cullom, exhibited by John D. Gillett, Elkhart, Ill.

EARLY MATURITY.

Steers 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
5	J. S. Highmore, Rochest'r, Ill.	782	1,560	1.99	Robin Hood	Shorthorn
8	Jno. B. Sherman, Chicago, Ill.	908	1,825	2.01	Belmont	"
9	Wm. Sandusky, Catlin, Ill.	1,005	1,925	1.91	Abe Renic	"
64	Wm. Sandusky, Catlin, Ill.	979	1,932	1.97	Richards	Grade Shorthorn
65	T. L. Miller, Beecher, Ill.	852	1,650	1.93	Putnam	Grade Hereford
67	T. L. Miller, Beecher, Ill.	832	1,845	2.21	Conqueror	" "
69	A. F. Moore, Polo, Ill.	940	1,900	2.02	Hawks	Grade Shorthorn
70	J. D. Gillett, Elkhart, Ill.	910	1,785	1.96	Clare S. Reed	" "
71	J. D. Gillett, Elkhart, Ill.	910	1,815	1.99	Albert Pell	" "
72	J. D. Gillett, Elkhart, Ill.	940	1,975	2.10	Blood	" "
	Average	905	1,821	2.01		

Premium silver cup, value $25, to steer Conqueror; exhibited by T. L. Miller, Beecher, Ill.

EARLY MATURITY.

Steers 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
81	Cobb & Phillips, Kan'kee, Ill.	585	1,450	2.47	Sibley	Grade Shorthorn
82	Cobb & Phillips, Kan'kee, Ill.	572	1,340	2.34	Logan	" "
10	J. S. Highmore, Rochest'r, Ill.	721	1,590	2.20	Corporal	Shorthorn
85	G.S.Burleigh, Mech'sville, Io.	594	1,395	2.34	Gleason	Sh'thorn&H'ford.
86	T. L. Miller, Beecher, Ill.	696	1,580	2.27	Kansas	Grade Hereford
87	A. F. Moore, Polo, Ill.	648	1,420	2.19	Fred	Grade Shorthorn
88	J. D. Gillett, Elkhart, Ill.	634	1,228	1.93	Clinker	" "
92	J. D. Gillett, Elkhart, Ill.	545	1,100	2.02	Cherry	" "
100	D. M. Moninger, Albion, Io.	671	1,395	2.07	Perfection	" "
101	J. D. Gillett, Elkhart, Ill.	685	1,420	2.10	Crash	" "
	Average	635	1,391	2.19		

Premium silver cup, value $25, to steer Sibley; exhibited by Cobb & Phillips, Kankakee, Ill.

CATALOGUE OF STOCK,

EXHIBITED AT THE THIRD ANNUAL FAT STOCK SHOW.

No. of Stall	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
1	J. D. Gillett, Elkhart, Ill	545	1,300	2.38	Clem	Grade Shorthorn
2	J. D. Gillett, Elkhart, Ill	634	1,228	1.93	Clinker	" "
3	J. D. Gillett, Elkhart, Ill	422	1,104	2.61	Robinson Crusoe	" "
4	J. D. Gillett, Elkhart, Ill	514	1,250	2.43	Cloud	" "
5	J. D. Gillett, Elkhart, Ill	514	1,250	2.43	Cash	" "
6	J. D. Gillett, Elkhart, Ill	696	1,175	1.69	Chap	" "
7	J. D. Gillett, Elkhart, Ill	726	1,328	1.83	Cider	" "
8	J. D. Gillett, Elkhart, Ill	453	1,025	2.26	Cheap	" "
9	J. D. Gillett, Elkhart, Ill	575	1,115	1.94	Chance	" "
10	J. D. Gillett, Elkhart, Ill	545	1,100	2.02	Cherry	" "
11	J. D. Gillett, Elkhart, Ill	453	1,220	2.69	Change	" "
12	J. D. Gillett, Elkhart, Ill	514	1,155	2.24	Chip	" "
13	J. D. Gillett, Elkhart, Ill	1,244	1,770	1.42	Philip	" "
14	J. D. Gillett, Elkhart, Ill	1,275	2,035	1.59	Uncas	" "
15	J. D. Gillett, Elkhart, Ill	688	1,880	2.73	Porter	" "
16	J. D. Gillett, Elkhart, Ill	1,305	2,125	1.62	Oglesby	Shorthorn
17	J. D. Gillett, Elkhart, Ill	1,280	2,000	1.56	Beveridge	" "
18	J. D. Gillett, Elkhart, Ill	1,250	2,215	1.77	Cullom	" "
19	J. D. Gillett, Elkhart, Ill	1,640	2,375	1.45	Foote	Grade Shorthorn
20	J. D. Gillett, Elkhart, Ill	1,670	2,235	1.33	Farragut	" "
21	J. D. Gillett, Elkhart, Ill	1,517	2,370	1.56	Cap. Nels. Morris	" "
22	J. D. Gillett, Elkhart, Ill	1,882	2,375	1.26	Sherman	" "
23	J. D. Gillett, Elkhart, Ill	1,670	2,460	1.47	Gen. Grant	" "
24	J. D. Gillett, Elkhart, Ill	1,517	2,575	1.69	Sheridan	" "
25	J. D. Gillett, Elkhart, Ill	1,183	2,000	1.69	Capt. Jack	" "
26	J. D. Gillett, Elkhart, Ill	1,244	2,000	1.60	Logan	" "
27	C. M. Culbertson, Chicago	1,310	1,875	1.43	Mossy Coat	Grade Hereford
28	C. M. Culbertson, Chicago	1,305	1,735	1.33	Uphorns	" "
29	J. D. Gillett, Elkhart, Ill	971	1,805	1.85	McMullin	Grade Shorthorn
30	J. D. Gillett, Elkhart, Ill	1,305	2,085	1.59	Osceola	" "
31	J. D. Gillett, Elkhart, Ill	1,275	2,000	1.56	Pontiac	" "
32	J. D. Gillett, Elkhart, Ill	1,244	2,090	1.60	Tecumseh	" "
33	J. D. Gillett, Elkhart, Ill	1,183	2,020	1.70	Blackhawk	" "
34	J. D. Gillett, Elkhart, Ill	1,275	1,880	1.47	Mohawk	" "
35	J. D. Gillett, Elkhart, Ill	1,183	1,925	1.62	Modoc	" "
36	J. D. Gillett, Elkhart, Ill	1,275	1,575	1.23	Chub	" "
37	J. D. Gillett, Elkhart, Ill	940	1,975	2.10	Blood	" "
38	J. D. Gillett, Elkhart, Ill	910	1,485	1.63	Blank	" "
39	J. D. Gillett, Elkhart, Ill	1,000	1,720	1.72	Blackstone	" "
40	J. D. Gillett, Elkhart, Ill	685	1,420	2.07	Crash	" "
41	J. D. Gillett, Elkhart, Ill	910	1,715	1.88	Vaughan	" "
42	J. D. Gillett, Elkhart, Ill	924	1,720	1.86	Governor	" "
43	J. D. Gillett, Elkhart, Ill	879	1,600	1.82	Jim Smith	" "
44	J. D. Gillett, Elkhart, Ill	910	1,785	1.96	Clare S. Reed	" "
45	J. D. Gillett, Elkhart, Ill	910	1,605	1.76	Charlton	" "
46	J. D. Gillett, Elkhart, Ill	910	1,815	1.99	Albert Pell	" "
47	J. D. Gillett, Elkhart, Ill	910	1,550	1.70	Whipple	" "
48	J. D. Gillett, Elkhart, Ill	1,640	2,075	1.57	Barney	" "
49						
50	A. Z. Blodgett, Waukegan, Ill				Stallion	Clydesdale
51	A. Z. Blodgett, Waukegan, Ill				"	"
52	S. Beatie, Annan, Scotland				Stallion	Clydesdale
53	S. Beatie, Annan, Scotland				"	"
54	T. L. Miller, Beecher, Ill	1,350	1,720	1.27	Maid Orleans	Hereford
55	T. L. Miller, Beecher, Ill	1,183	1,875	1.58	Alex	"

Catalogue of Stock—Continued.

No. of Stall	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
56	T. L. Miller, Beecher, Ill	832	1,845	2.21	Conqueror	Grade Hereford
57	T. L. Miller, Beecher, Ill	852	1,650	1.93	Putnam	" "
58	J. H. Graves, Chilesburg, Ky.	1,707	2,465	1.44	Nichols	" Shorthorn
59	J. H. Graves, Chilesburg, Ky.	1,411	2,030	1.44	Morrow	" "
60	Wm. Sandusky, Catlin, Ill	1,367	2,350	1.71	Vermilion	Shorthorn
61	Wm. Sandusky, Catlin, Ill	1,005	1,925	1.91	Abe Renic	"
62	Wm. Sandusky, Catlin, Ill	979	1,932	1.97	Col. Richards	Grade Shorthorn
63	Amos F. Moore, Polo, Ill	1,197	2,005	1.67	Frank	" "
64	Amos F. Moore, Polo, Ill	940	1,900	2.02	Hawks	" "
65	Amos F. Moore, Polo, Ill	648	1,420	2.19	Fred	" "
66	D. M. Moninger, Albion, Iowa	671	1,395	2.07	Perfection	" "
67	J. B. Sherman, Chicago, Ill	2,765	3,125	1.13	Nels. Morris	" "
68	J. B. Sherman, Chicago, Ill	1,064	1,815	1.70	Boynton	Shorthorn
69	J. B. Sherman, Chicago, Ill	952	1,880	1.97	Morris	"
70	J. B. Sherman, Chicago, Ill	908	1,825	2.01	Belmont	"
71	J. B. Sherman, Chicago, Ill	879	1,705	1.94	Jim Blaine	Grade Shorthorn
72	J. B. Sherman, Chicago, Ill	849	1,590	1.87	Douglas	" "
73	Wm. Scott, Wyoming, Ill	2,692	1,690		Maggie 4th	Shorthorn
73	Wm. Scott, Wyoming, Ill	2,136	1,710		Forest Queen 2d	"
74	R. G. Dun, Mechanicsburg, O.	4,266	1,455		Grand Chunk	"
75	H. A. Basset, Jefferson, Ill	4,225	1,770		Spot	Grade Shorthorn
76	Potts & Son, Jacksonville, Ill.	821	1,700	2.07	Fred	" "
77	T. L. Miller, Beecher, Ill	1,079	1,865	1.73	General	Hereford
78	T. L. Miller, Beecher, Ill	832	1,775	2.13	Bachelor	Grade Hereford
79	T. L. Miller, Beecher, Ill	884	1,700	1.92	Washington	Hereford
80	T. L. Miller, Beecher, Ill	1,018	1,650	1.62	Will	"
81	T. L. Miller, Beecher, Ill	832	1,565	1.88	Rob Roy	Grade Hereford
82	T. L. Miller, Beecher, Ill	696	1,580	2.27	Kansas	" "
83	J. S. Highmore, Rochester, Ill	782	1,560	1.99	Robin Hood	Shorthorn
84	J. S. Highmore, Rochester, Ill	721	1,590	2.20	Corporal	"
85	E. J. Green, Valparaiso, Ind.	1,505	1,875	1.24	Centennial	Grade Shorthorn
86	J. Weedman, Farmer City, Ill	2,035	3,050	1.50	Moses	" "
87	Cobb & Phillips, Kankakee, Ill	572	1,400	2.44	Logan	" "
87	Cobb & Phillips, Kankakee, Ill	585	1,490	2.54	Sibley	" "
88	A. W. Taylor, Lake Forest, Ill	2,035	2,375	1.16	Duke	" "
103	Potts & Son, Jacksonville, Ill		2,650		Fred'ick William	Shorthorn bull
104	Potts & Son, Jacksonville, Ill		1,357		Emma 4th	" cow
104	Potts & Son, Jacksonville, Ill		1,390		Emma 5th	" "
105	James Winn, Huntley Grove					Holstein bull
106	Willard & Son, Harristown, Ill	1,275	1,980	1.55	Masters	Grade Shorthorn
107	Willard & Son, Harristown, Ill	1,264	1,950	1.54	Chamberlain	" "
108	Willard & Son, Harristown, Ill	1,285	1,949	1.51	Burks	" "
109	Willard & Son, Harristown, Ill	1,290	1,955	1.51	Scroggins	" "
110	Willard & Son, Harristown, Ill	1,305	1,950	1.49	Pickrell	" "
111	Willard & Son, Harristown, Ill	1,280	1,935	1.51	Peck	" "
112	Willard & Son, Harristown, Ill	1,295	1,775	1.37	Ayman	" "
113	Willard & Son, Harristown, Ill	1,300	1,895	1.45	Stookey	" "
114	Willard & Son, Harristown, Ill	1,317	2,050	1.55	Ford	" "
115	Thos. Bidwell, Gurnee, Ill	1,305	1,270	.97	Major	Devon
116	Thos. Bidwell, Gurnee, Ill	1,305	1,170	.89	Broad	"
117						
118	G.S.Burleigh, M'ch'nicsv'le, Io	642	1,245	1.94	Monroe	Hereford-Short'n
119	G.S.Burleigh, M'ch'nicsv'le, Io	594	1,395	2.34	Gleason	Short'n-Hereford
120	G.S.Burleigh, M'ch'nicsv'le, Io	710	1,115	1.57	Advance	Hereford
121	L. F. Ross, Avon, Ill	849	1,250	1.47	Honest Tom	Devon
122	L. F. Ross, Avon, Ill	618	990	1.60	Bill Young	"
123	L. F. Ross, Avon, Ill	1,711	2,035	1.18	Broad	"
124	L. F. Ross, Avon, Ill	1,701	1,940	1.14	Buck	"
125	L. F. Ross, Avon, Ill				Draft stallion	Percheron
126	W. H. Flint, Chicago, Ill				Roadster stallion	Hambletonian
127	D.McKay, Dumfreyshire, Scot.				Draft stallion	Clydesdale
128	D.McKay, Dumfreyshire, Scot.				" "	"
129	W. R. Moffatt, Paw Paw, Ill				" "	"
130	W. R. Moffatt, Paw Paw, Ill				" mare	"
131	E. Dillon & Co., Normal, Ill				" stallion	Percheron
132	E. Dillon & Co., Normal, Ill				" "	"

The Sheep and Hogs occupied the Machinery Hall, on the north end of the Exposition building.

REPORTS OF AWARDING COMMITTEES.

CLASS C—SHEEP.

With few exceptions, the competing sheep were animals of more than ordinary merit, though not, however, so much uniform in condition as could be desired. In a few instances, notably in the fine wool rings, animals were passed as being two low in flesh for good mutton, while some animals in the other rings were pronounced too fat for profitable cutting and retailing.

LOT 13—LONG WOOLS.

Wether 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
104	Morgan & Cotton, Newman, Ill	945	248	0.26	Clinker	Cotswold
105	Morgan & Cotton, Newman, Ill	948	248	0.26	Captor	"
106	Morgan & Cotton, Newman, Ill	934	257	0.24	Captive	"
107	J. A. Brown & Son, Decatur, Ill	940	236	0.25	Jim	"
108	J. A. Brown & Son, Decatur, Ill	940	221	0.23	Sampson	"
109	Geo. Hood, Guelph, Ca.	971	282	0.29	William	Leicester
	Average	946	243	0.25		

First premium $10, to Captor, exhibited by Morgan & Cotton, Newman, Ill.
Second premium $5, to Clinker, exhibited by Morgan & Cotton, Newman, Ill.

REPORT OF COMMITTEE.

Six 2-year-old wethers were shown, all good. Some, though well proportioned, were deemed to have too great a proportion of fat to muscle. Prize animals had light head and neck, good bristles, and had valuable meat bearing points admirably developed.

Wether 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
110	J. A. Brown & Son, Decatur, Ill	575	195	0.34	Favorite	Cotswold
111	J. A. Brown & Son, Decatur, Ill	575	198	0.34	Trickey	"
	Average	575	196	0.34		

First premium $10, to Favorite, exhibited by J. A. Brown & Son, Decatur, Ill.
Second premium $5, to Trickey, exhibited by J. A. Brown & Son, Decatur, Ill.

REPORT OF COMMITTEE.

Yearling wethers were a fine ring, but lacking the development that comes with age. Condition good.

Wether under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
112	J. A. Brown & Son, Decatur, Ill	210	114	0.54	Pet	Cotswold

No premium awarded—not worthy.

REPORT OF COMMITTEE.

Wether lambs were deficient in condition, though well formed; not deemed worthy.

Ewe 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
113	J. A. Brown & Son, Decatur, Ill	940	271	0.28	Snowflake	Cotswold

First premium $20, to Snowflake, exhibited by J. A. Brown & Son, Decatur, Ill.

REPORT OF COMMITTEE.

In the ring for ewes but one 2-year-old animal was shown; deemed worthy and first prize awarded.

Ewe 1 and under 2 years—no entries.

Ewe under 1 year.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
114	Geo. Hood, Guelph, Canada.	243	111	0.45	Belle	Leicester

First premium $10, to Belle, exhibited by Geo. Hood, Guelph, Canada.

REPORT OF COMMITTEE.

No yearling ewes shown. In ewe lambs, but one animal was brought out; this was pronounced a fair specimen.

LOT 14—MIDDLE WOOLS.

Wethers 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
115	Potts & Son, Jacksonville, Ill.	940	273	0.29	Tom	Southdown
116	Potts & Son, Jacksonville, Ill.	940	227	0.24	Dick	"
117	Potts & Son, Jacksonville, Ill.	940	215	0.23	Harry	"
118	Potts & Son, Jacksonville, Ill.	940	244	0.26	Jimmy	"
119	Geo. Pickrell, Wheatfield, Ill.	952	214	0.22	John T	"
120	Geo. Pickrell, Wheatfield, Ill.	948	211	0.22	Frank	"
121	Geo. Pickrell, Wheatfield, Ill.	944	202	0.21	Nick	"
122	Geo. Pickrell, Wheatfield, Ill.	942	196	0.20	J. N	"
123	Geo. Pickrell, Wheatfield, Ill.	940	192	0.20	Mark	"
	Average	943	219	0.23		

First premium $10, to Dick, exhibited by J. H. Potts & Son, Jacksonville, Ill.
Second premium $5, to Jimmy, exhibited by J. H. Potts & Son, Jacksonville, Ill.

REPORT OF COMMITTEE.

Eight animals were in the ring of 2-year wethers, all admirably good and remarkably uniform in condition, rendering the task of the committee by no means an enviable one, as the slight disparity in size of animals was accounted for largely by the diversity in age.

Wether 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
124	Morgan & Cotton, Newman, Ill	594	201	0.34	Victor	Shropshire
125	Morgan & Cotton, Newman, Ill	587	168	0.28	Vulcan	"
126	Potts & Son, Jacksonville, Ill.	606	211	0.34	Modoc	Southdown
127	Potts & Son, Jacksonville, Ill.	606	192	0.31	Barney	"
128	Geo. Pickrell, Wheatfield, Ill.	589	146	0.25	Doc	"
129	Geo. Pickrell, Wheatfield, Ill.	584	140	0.24	Boots	"
130	Geo. Pickrell, Wheatfield, Ill.	581	140	0.24	O. P	"
	Average	592	171	0.28		

First premium $10, to Victor, exhibited by Morgan & Cotton, Newman, Ill.
Second premium $5, to Vulcan, exhibited by Morgan & Cotton, Newman, Ill.

REPORT OF COMMITTEE.

The yearling wethers were but little below the average of the previous ring, showing remarkable precocity, and carrying the valuable meat-producing points to a very high degree.

Wether under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
131	Geo. Hood, Guelph, Canada.	244	107	0.43	Derby	Southdown

REPORT OF COMMITTEE.

In the ring for wether lambs, a remarkable falling off was noticed, but one animal being brought, and this in too thin flesh to secure the approval of the committee.

Ewes 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
132	Geo. Pickrell, Wheatfield, Ill.	954	174	0.18	Susie	Southdown
133	Geo. Pickrell, Wheatfield, Ill.	953	173	0.18	Lady	"
	Average	953½	173½	0.18		

First premium $10, to Susie, exhibited by Geo. Pickrell, Wheatfield, Ill.
Second premium $5, to Lady, exhibited by Geo. Pickrell, Wheatfield, Ill.

REPORT OF COMMITTEE.

The 2-year-old ewes made a fine ring—little, if any, below the standard of wethers of same age.

Ewes 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
134	Morgan & Cotton, Newman, Ill	604	199	0.32	Jennie	Shropshire
135	Geo. Pickrell, Wheatfield, Ill.	573	130	0.22	Beauty	Southdown
136	Geo. Pickrell, Wheatfield, Ill.	569	134	0.23	Jennie	"
	Average	682	154	0.26		

First premium $10, to Jennie, exhibited by Morgan & Cotton, Newman, Ill.
Second premium $5, to Beauty, exhibited by Geo. Pickrell, Wheatfield, Ill.

REPORT OF COMMITTEE.

The yearling ewes made a fine show—little, if any, below the standard of wethers of same age.

Ewes under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
137	Taylor Bros., Waynesville, Ill.	210	89	0.42	Lady Down	Shropshire
138	Geo. Hood, Guelph, Canada	216	104	0.42	May	Southdown
139	Geo. Pickrell, Wheatfield, Ill.	200	87	0.43	Alice	"
	Average	218	93	0.42		

First premium $10, to May; exhibited by Geo. Hood, Guelph, Canada.
Second premium $5, to Lady Down; exhibited by Taylor Bros., Waynesville, Ill.

Three good ewe lambs were shown.

LOT 15—FINE-WOOL.

This feature of the Show was conspicuous by reason of the small interest manifested by exhibiters and visitors. But few of the rings were filled at all; and those with animals far below the condition for good mutton, and were pronounced as unworthy a recognition and first prize, as fat sheep. Second premium was awarded in some instances, as such conditioned stock would be used by butchers when nothing better could be had.

No lambs were shown.

Wether 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
140	Taylor Bros., Waynesville, Ill.	940	139	0.14	Jim	Merino

Second premium $5, to Jim; exhibited by Taylor Bros., Waynesville, Ill.

Wethers 1 and under 2 years

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
141	Taylor Bros., Waynesville, Ill.	580	118	0.20	Jake	Merino
142	Taylor Bros., Waynesville, Ill.	580	107	0.18	Sam	"
	Average	580	112	0.19		

First premium—No award
Second premium $5, to Jake; exhibited by Taylor Bros., Waynesville, Ill.

Wether under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
143	Taylor Bros., Waynesville, Ill.	210	75	0.35	Billy	Merino

Not worthy.

Ewes 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
144	Taylor Bros., Waynesville, Ill	1,014	98	0.09	Nancy	Merino
145	Taylor Bros., Waynesville, Ill	940	101	0.10	Sarah	Merino
	Average	977	99	0.10		

First premium, "No award."
Second premium $5, to Nancy, exhibited by Taylor Bros., Waynesville, Ill.

Ewes 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
146	Taylor Bros., Waynesville, Ill	570	97	0.17	Mary	Merino
147	Taylor Bros., Waynesville, Ill	567	59	0.10	Jenny	Merino
	Average	568	78	0.13		

No awards—not worthy.

LOT 16—GRADES OR CROSSES.

Wethers 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
148	John Hudson, Moawequa, Ill.	971	246	0.25	Diamond	Gr'de Shropshire
149	John Hudson, Moawequa, Ill.	971	181	0.18	Billy	Gr'de Shropshire
150	Geo. Pickrell, Wheatfield, Ill.	925	220	0.23	Cross	Grade Cotsweld.
151	Geo. Pickrell, Wheatfield, Ill.	926	216	0.23	Ben	Gr'de Southdown
152	Geo. Pickrell, Wheatfield, Ill.	928	210	0.22	Bud	Gr'de Southdown
153	Geo. Pickrell, Wheatfield, Ill.	920	199	0.21	Lucky	Gr'de Southdown
154	Geo. Pickrell, Wheatfield, Ill.	922	194	0.21	Sam	Gr'de Southdown
	Average	937	209	0.22		

First premium $10, to cross exhibited by Geo. Pickrell, Wheatfield, Ill.
Second premium $5, to Ben, exhibited by Geo. Pickrell, Wheatfield, Ill.

COMMITTEE REPORT.

The wether rings made a fine display. Some of the two year old animals were pronounced too fat for profitable cutting; preference was given to those animals on which the fat was most evenly distributed and proportioned to amount of edible flesh.

Wethers 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
155	F. Willson, Jackson, Mich.	607	.....	.....	Arkel	Grade Southdo'n
156	Morgan & Cotton, Newman, Ill	578	191	0.33	Warrior	Gr'de Shropshire
157	Geo. Hood, Guelph, Canada.	610	232	0.38	Professor	Grade Oxford
158	Geo. Hood, Guelph, Canada.	612	229	0.37	Rugby	" "
	Average	601	217	0.36		

First premium $10 00, to Professor, exhibited by Geo. Hood, Guelph, Canada.
Second premium $5 00, to Rugby, exhibited by Geo. Hood, Guelph, Canada.

Wethers under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
159	Taylor Bros., Waynesville, Ill	241	119	0.49	Zeb	Gr'de Shropshire
160	Geo. Hood, Guelph, Canada.	223	.....	.....	Fred	Grade Oxford
161	Geo. Hood, Guelph, Canada.	223	118	0.52	Robin	" "
	Average	229	118	0.51		

First premium $10 00, to Fred, exhibited by Geo. Hood, Guelph, Canada.
Second premium $5 00, to Zeb, exhibited by Taylor Bros., Waynesville, Ill.
In the ring for wether lambs but three were shown—all remarkably fine.

Ewe 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
162	Geo. Hood, Guelph, Canada.	950	232	0.24	Lady Brown	Grade Oxford

First premium $10 00, to Lady Brown. exhibited by Geo. Hood, Guelph, Canada.
In the aged ewe ring but one animal was shown—very worthy.

Ewe 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day. in pounds. since birth	Name of Animal.	Breed.
163	Taylor Bros., Waynesville, Ill.	528	171	0.32	Jane	Grade Cotswold.

First premium $10, to Jane, exhibited by Taylor Bros., Waynesville, Ill.

Ewes under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
164	Taylor Bros., Waynesville, Ill.	242	119	0.49	Susan	Gr'de Shropshire
165	Geo. Hood, Guelph, Canada	218	127	0.58	Minnie	Grade Oxford
166	Geo. Hood, Guelph, Canada	217	110	0.50	Ann	" "
	Average	225	118	0.52		

First premium $10, to Minnie, exhibited by Geo. Hood, Guelph, Canada.
Second premium $5, to Ann, exhibited by Geo. Hood, Guelph, Canada.

REPORT OF COMMITTEE.

Ewe lambs were fine, well matured and in every respect desirable.

LOT 17—SWEEPSTAKES.

REPORT OF COMMITTEE.

In these rings, for the first time during the show, representatives from all the breeds, as well as their crosses and grades, were brought into competition, affording good opportunity for comparison, and demanding the closest scrutiny and discrimination on the part of the judges. Some animals were pronounced too fat; others passed because the fat was shown in bunches. Prizes went to those animals indicating lowest percentage of offal and with meat disposed to points yielding the choicest cuts.

Wethers 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
104	Morgan & Cotton, Newman, Ill	945	248	0.26	Clinker	Cotswold
105	Morgan & Cotton, Newman, Ill	948	248	0.26	Captor	"
116	Potts & Son, Jacksonville, Ill.	940	227	0.24	Dick	Southdown
118	Potts & Son, Jacksonville, Ill.	940	244	0.26	Jimmy	"
120	Geo. Pickrell, Wheatfield, Ill.	948	211	0.22	Frank	"
121	Geo. Pickrell, Wheatfield, Ill.	944	202	0.21	Nic	"
150	Geo. Pickrell, Wheatfield, Ill.	925	220	0.23	Cross	Grade Cotswold
151	Geo. Pickrell, Wheatfield, Ill.	926	216	0.23	Ben	" Southdown
148	John Hudson, Moawequa, Ill.	971	246	0.25	Diamond	" Shropshire
149	John Hudson, Moawequa, Ill.	971	181	0.18	Billy	" "
107	J. A. Brown & Son, Decatur, Ill	940	236	0.25	Jim	Cotswold
108	J. A. Brown & Son, Decatur, Ill	940	221	0.23	Sampson	"
119	Geo. Pickrell, Wheatfield, Ill.	952	214	0.22	John T	Southdown
109	Geo. Hood, Guelph, Ca.	971	282	0.29	William	Leicester
	Average	947	228	0.24		

Premium $25, to Jimmy, exhibited by J. H. Potts & Son, Jacksonville, Ill.

Wethers 1 and under 2 years.

No. Animal.	Exhibiter.	Age in days.	Weight Nov. 11, 1880.	Average gain per day in pounds since birth.	Name of Animal.	Breed.
155	Frank Wilson, Jackson, Mich.	607	.....	.....	Arkel	Grade Southd'wn
124	Morgan & Cotton, Newman, Ill	594	201	0.34	Victor	Shropshire
125	Morgan & Cotton, Newman, Ill	587	168	0.28	Vulcan	"
126	Potts & Son, Jacksonville, Ill.	606	211	0.34	Modoc	Southdown
127	Potts & Son, Jacksonville, Ill.	606	192	0.31	Barney	"
110	J. A. Brown & Son, Decatur, Ill	575	195	0.34	Favorite	Cotswold
111	J. A. Brown & Son, Decatur, Ill	575	198	0.34	Trickey	"
128	Geo. Pickrell, Wheatfield, Ill.	589	146	0.25	Doc	Southdown
129	Geo. Pickrell, Wheatfield, Ill.	589	140	0.24	Boots	"
158	Geo. Hood, Guelph, Ca.	612	229	0.37	Rugby	Grade Oxford
157	Geo. Hood, Guelph, Ca.	612	232	0.38	Professor	" "
	Average	595	191	0.32		

Premium $25, to Arkel, exhibited by Frank Wilson, Jackson, Mich.

Wether under 1 year.

No. Animal.	Exhibiter.	Age in days.	Weight Nov. 11, 1880.	Average gain per day in pounds since birth.	Name of Animal.	Breed.
159	Taylor Bros., Waynesville, Ill.	241	119	0.49	Zeb	Gr'de Shropshire
112	J. A. Brown & Son, Decatur, Ill	210	114	0.54	Pet	Cotswold
131	Geo. Hood, Guelph, Ca.	244	107	0.43	Derby	Southdown
161	Geo. Hood, Guelph, Ca.	223	118	0.52	Robin	Grade Oxford
	Average	228	114	0.49		

Premium $25, to Robin, exhibited by Geo. Hood, Guelph, Ca.

SWEEPSTAKES RING—EWES.

The ewes in the lot compared favorably with the wethers in all the points most desired for mutton purposes. On ewe lamb, the premium was given to the smallest in the ring, though remarkably fine in every respect.

Ewe 2 and under 3 years.

No. Animal.	Exhibiter.	Age in days.	Weight, Nov. 11, 1880.	Average gain per day in pounds since birth.	Name of Animal.	Breed.
132	Geo. Pickrell, Wheatfield, Ill.	954	174	0.18	Susie	Southdown
133	Geo. Pickrell, Wheatfield, Ill.	953	173	0.18	Lady	"
162	Geo. Hood, Guelph, Canada.	950	232	0.24	Lady Brown	Grade Oxford
113	J. A. Brown & Son, Decatur, Ill	940	271	0.28	Snowflake	Cotswold
	Average	949	212	0.22		

Premium $25, to Susie, exhibited by Geo. Pickrell, Wheatfield, Ill.

Ewes 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
134	Morgan & Cotton, Newman, Ill	604	199	0.32	Jennie	Shropshire
163	Taylor Bros, Waynesville, Ill.	528	171	0.32	Jane	Grade Cotswold
135	Geo. Pickrell, Wheatfield, Ill.	573	130	0.22	Beauty	Southdown
136	Geo. Pickrell, Wheatfield, Ill.	569	134	0.23	Jenny	"
	Average	568	158	0.27		

Premium $25, to Jane, exhibited by Taylor Bros., Waynesville, Ill.

Ewe under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1881	Average gain per day in pounds since birth	Name of Animal.	Breed.
139	Geo. Pickrell, Wheatfield, Ill.	200	87	0.43	Alice	Southdown
165	Geo. Hood, Guelph, Canada.	218	127	0.58	Minnie	Grade Oxford
138	Geo. Hood, Guelph, Canada.	246	104	0.42	May	Southdown
166	Geo. Hood, Guelph, Canada.	217	110	0.50	Ann.	Grade Oxford
	Average	220	107	0.48		

Premium $25, to May, exhibited by Geo. Hood, Guelph, Canada.

LOT 18—GRAND SWEEPSTAKES.

Wether or Ewe in Show.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
155	Frank Wilson, Jackson, Mich.	607			Arkel	Grade Southd'wn
104	Morgan&Cotton, Newman, Ill.	945	248	0.26	Clinker	Cotswold
105	Morgan&Cotton, Newman, Ill.	948	248	0.26	Captor	"
134	Morgan&Cotton, Newman, Ill.	604	199	0.32	Jennie	Shropshire.
124	Morgan&Cotton, Newman, Ill.	594	201	0.34	Victor	"
125	Morgan&Cotton, Newman, Ill.	587	168	0.28	Vulcan	
115	Potts & Son, Jacksonville, Ill.	940	273	0.29	Tom	Southdown
116	Potts & Son, Jacksonville, Ill.	940	227	0.24	Dick	"
163	Taylor Bros., Waynesville, Ill.	528	171	0.32	Jane	Grade Cotswold
148	John Hudson, Moawequa, Ill.	971	246	0.25	Diamond	Grade Shropsh're.
149	John Hudson, Moawequa, Ill.	971	181	0.18	Billy	" "
119	Geo. Pickrell, Wheatfield, Ill.	952	214	0.22	John T	Southdown
120	Geo. Pickrell, Wheatfield, Ill.	948	211	0.22	Frank	"
150	Geo. Pickrell, Wheatfield, Ill.	925	220	0.23	Cross	Grade Cotswold
151	Geo. Pickrell, Wheatfield, Ill.	926	216	0.23	Ben	Grade Southd'wn
162	Geo. Hood, Guelph, Canada	950	232	0.24	Lady Brown	Grade Oxford
113	J. A. Brown&Son, Decatur, Ill.	940	271	0.28	Snowflake	Cotswold
157	Geo. Hood, Guelph, Canada	610	232	0.38	Professor	Grade Oxford
158	Geo. Hood, Guelph, Canada	612	229	0.37	Rugby	" "
	Average	815	221	0.27		

Premium $30, to Tom; exhibited by J. H. Potts & Son, Jacksonville, Ill.

REPORT OF COMMITTEE.

The competition in this lot was made up from the choicest animals shown in previous rings, and the display was in every respect creditable. After long and critical deliberation, the award was made to a Southdown wether. The nineteen remarkably fine animals competing in this ring for the very substantial prizes, made it the most interesting display in the Sheep department.

LOT 19—HEAVIEST FAT SHEEP.

Wether or Ewe any age.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
104	Morgan&Cotton, Newman, Ill.	945	248	0.26	Clinker	Cotswold
115	Potts & Son, Jacksonville, Ill.	940	273	0.29	Tom	Southdown
205	John Hudson, Moawequa, Ill.	971	190	0.19	Captain	Grade Shropsh're
150	Geo. Pickrell, Wheatfield, Ill.	925	220	0.23	Cross	Grade Cotswold
167	Geo. Hood, Guelph, Canada	1,335	324	0.24	Hanlan	Cotswold
168	Geo. Hood, Guelph, Canada	1,330	315	0.23	Lady Swanwick	"
113	J. A. Brown&Son, Decatur, Ill.	940	271	0.28	Snowflake	"
	Average	1,055	263	0.24		

Premium $50, to Hanlan; exhibited by Geo. Hood, Guelph, Canada.

LOT 20—CAR LOAD.

30 fat Wethers 2 and under 3 years.

No. Animal.	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
....	Geo. Pickrell, Wheatfield, Ill.	925	220	0.23	Cross	Grade Cotswold.
....	Geo. Pickrell, Wheatfield, Ill.	926	216	0.23	Ben	Grade Southdo'n
....	Geo. Pickrell, Wheatfield, Ill.	928	210	0.22	Bud	" "
....	Geo. Pickrell, Wheatfield, Ill.	920	199	0.21	Lucky	" "
....	Geo. Pickrell, Wheatfield, Ill.	922	194	0.21	Sam	
....	Geo. Pickrell, Wheatfield, Ill.	952	214	0.22	John T.	Southdown
....	Geo. Pickrell, Wheatfield, Ill.	948	211	0.22	Frank	"
....	Geo. Pickrell, Wheatfield, Ill.	944	202	0.21	Nic	"
....	Geo. Pickrell, Wheatfield, Ill.	942	196	0.20	J. N.	"
....	Geo. Pickrell, Wheatfield, Ill.	940	192	0.20	Mark	"
....	Geo. Pickrell, Wheatfield, Ill.	954	170	0.17	Fisher	"
....	Geo. Pickrell, Wheatfield, Ill.	953	179	0.18	Mills	"
....	Geo. Pickrell, Wheatfield, Ill.	952	178	0.18	Dewey	"
....	Geo. Pickrell, Wheatfield, Ill.	951	180	0.18	Higgins	"
....	Geo. Pickrell, Wheatfield, Ill.	950	185	0.19	Hoyt	"
....	Geo. Pickrell, Wheatfield, Ill.	949	186	0.19	Bradford	Grade Southdo'n
....	Geo. Pickrell, Wheatfield, Ill.	948	194	0.20	Scott	" "
....	Geo. Pickrell, Wheatfield, Ill.	947	195	0.20	Gillham	" "
....	Geo. Pickrell, Wheatfield, Ill.	946	186	0.19	Bunn	" "
....	Geo. Pickrell, Wheatfield, Ill.	945	178	0.18	Ellsworth	" "
....	Geo. Pickrell, Wheatfield, Ill.	944	165	0.17	Emery	" "
....	Geo. Pickrell, Wheatfield, Ill.	943	177	0.18	Reynolds	" "
....	Geo. Pickrell, Wheatfield, Ill.	942	182	0.19	Haskell	" "
....	Geo. Pickrell, Wheatfield, Ill.	941	193	0.20	Moore	" "
....	Geo. Pickrell, Wheatfield, Ill.	940	180	0.19	Dysart	" "
....	Geo. Pickrell, Wheatfield, Ill.	939	178	0.18	Snoad	" "
....	Geo. Pickrell, Wheatfield, Ill.	938	179	0.19	Cobb	" "
....	Geo. Pickrell, Wheatfield, Ill.	937	177	0.18	Vittum	" "
....	Geo. Pickrell, Wheatfield, Ill.	936	164	0.17	Beaty	" "
....	Geo. Pickrell, Wheatfield, Ill.	935	191	0.20	Douglas	" "
	Average	941	189	0.19		
....	John Hudson, Moawequa, Ill.	971	246	0.25	Diamond	Gr'de Shropshire
....	John Hudson, Moawequa, Ill.	971	213	0.21	Moses	" "
....	John Hudson, Moawequa, Ill.	971	231	0.23	Aaron	" "
....	John Hudson, Moawequa, Ill.	971	210	0.21	Duke	" "
....	John Hudson, Moawequa, Ill.	971	191	0.19	Tom	" "
....	John Hudson, Moawequa, Ill.	971	181	0.18	Billy	" "
....	John Hudson, Moawequa, Ill.	971	187	0.19	Garfield	" "
....	John Hudson, Moawequa, Ill.	971	208	0.21	General	" "
....	John Hudson, Moawequa, Ill.	971	182	0.18	Grant	" "
....	John Hudson, Moawequa, Ill.	971	176	0.18	Logan	" "
....	John Hudson, Moawequa, Ill.	971	200	0.20	Sherman	" "
....	John Hudson, Moawequa, Ill.	971	189	0.19	David	" "
....	John Hudson, Moawequa, Ill.	971	204	0.21	Uriah	" "
....	John Hudson, Moawequa, Ill.	971	168	0.17	Sol	" "
....	John Hudson, Moawequa, Ill.	971	201	0.20	Mike	" "
....	John Hudson, Moawequa, Ill.	971	181	0.18	Jerry	" "
....	John Hudson, Moawequa, Ill.	971	208	0.21	John	" "
....	John Hudson, Moawequa, Ill.	971	190	0.19	Captain	" "
....	John Hudson, Moawequa, Ill.	971	179	0.18	Colonel	" "
....	John Hudson, Moawequa, Ill.	971	175	0.18	Isaac	Cots., So'dn. & M.
....	John Hudson, Moawequa, Ill.	971	194	0.20	Royal	" " "
....	John Hudson, Moawequa, Ill.	971	180	0.18	Elias	" " "
....	John Hudson, Moawequa, Ill.	971	250	0.25	Ben	" " "
....	John Hudson, Moawequa, Ill.	971	227	0.23	Cronin	" " "
....	John Hudson, Moawequa, Ill.	971	203	0.20	Bradley	" " "
....	John Hudson, Moawequa, Ill.	971	209	0.21	English	" " "
....	John Hudson, Moawequa, Ill.	971	189	0.19	Arthur	" " "
....	John Hudson, Moawequa, Ill.	971	173	0.17	Eldrid	" " "
....	John Hudson, Moawequa, Ill.	971	171	0.17	Fanny	" " "
....	John Hudson, Moawequa, Ill.	971	172	0.17	Shakespeare	" " "
	Average	971	196	0.19		

First premium $60 00, to Geo. Pickrell, Wheatfield, Ill.
Second premium $30 00, to John Hudson, Moawequa, Ill.

REPORT OF COMMITTEE.

First premium went to a flock of Southdowns and high grades, remarkably even in appearance; average weight 189 pounds. Second premium to car load of grades and crosses from Shropshire, Cotswolds and Southdown; a fine lot, but not so even as their competitors; average weight 196 pounds.

LOT 21—DRESSED SHEEP.

Wethers 2 and under 3 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
104	Morgan & Cotton, Newman, Ill	945	248	0.26	Clinker	Cotswold.
191	John Hudson, Moawequa, Ill.	971	191	0.19	Tom	GradeShropshire
169	Geo. Pickrell, Wheatfield, Ill.	954	170	0 17	Fisher	Southdown
	Average	958	214	0.22		

Premium silver medal. to Fisher, exhibited by George Pickrell, Wheatfield, Illinois.

Report of Slaughter.

Wether 2 and under 3 years.

Number of Animal.	Name of Animal.	Breed.	Exhibiter.	Live weight	Dressed carcass	Per cent. net carcass to gross or live weight.	Weight, carcass, pelt and tallow	Per cent. profitable weight, carcass, pelt and tallow, to gr. wt.	Pelt	Tallow	Head and feet	Offal	Blood and shrinkage	Offal, or parts other than carcass, pelt or tallow	Per cent. offal to live weight
104	Clinker	Cotswold	Morgan & Cotton, Newm'n	244	168	68.85	205	84.01	20	17	7½	20	11½	39	15.98
191	Tom	Grade Shropshire	John Hudson, Moawequa.	183	113	61.75	143½	78.42	12	18½	7	23½	9	39½	21.58
169	Fisher	Southdown	Geo. Pickrell, Wheatfield,	158	105½	66.75	130	82.28	10½	14	5½	13½	9	28	17.72
....	1880		Average, 3 entries	195	129	65.78	159	81.57	14	16	7	19	10	35	18.43
....	1879		Average, 7 entries	221	142	63.83									

FIRST PREMIUM ANIMALS.

....	1880	Southdown wether		158	105½	66.75	130	82.28	10½	14	5½	13½	9	28	17.72
....	1879*	Gr. Shropshire ewe		247	164	66.40									

Fattest Sheep.

Wether 1 and under 2 years.

No Animal.	Exhibiter.	Age, in days.	Weight Nov. 11, 1880.	Average gain per day, in pounds, since birth	Name of Animal.	Breed.
157	Geo. Hood, Guelph, Canada.	610	194	0.31	Professor	Grade Oxford
156	Morgan & Cotton, Newman, Ill	578	187	0.32	Warrior	Gr'de Shropshire
130	Geo. Pickrell, Wheatfield, Ill.	.....	138	.....	O. P	Southdown

Premium silver medal, to O. P., by Geo. Pickrell, Wheatfield, Ill.

Report of Slaughter.

Wether 1 and under 2 years.

No. of Animal	Name of Animal.	Breed.	Exhibiter.	Live weight	Dressed carcass	Per cent. net carcass to gross or live wt.	Weight, carcass, pelt and tallow	Per cent. profitable weight, carcass, pelt and tallow, gross wt.	Pelt	Tallow	Head and feet	Offal	Blood and shrinkage	Offal, or other than carcass, pelt and tallow	Per cent. offal to live weight
....	Professor	Grade Oxford	Geo. Hood, Guelph, Ca.	194	122½	63.14	150½	77.58	18½	9½	8	22	13½	43½	22.42
....	Warrior	Grade Shropshire	Morgan & Cotton, Newman	187	105½	56.42	136	72.73	18½	12	7	32½	11½	51	27.27
130	O. P.	Southdown	Geo. Pickrell, Wheatfield.	138	85	61.59	109	78.99	11	13	5½	17½	6	29	21.01
	1880	Average, 3 entries		173	104	60.38	132	76.43	16	11	7	24	10	31	23.57
	1879	Average, 2 entries		149	87	58.40									

FIRST PREMIUM ANIMALS.

....	1880	Southdown		138	85	61.59	109	78.99	11	13	5½	17½	6	29	21.01
....	1879	"		123	74	60.10									

CLASS D—SWINE.

LOT 22—BERKSHIRES—BARROWS.

Barrow 1 and under 2 years—no entry.

Barrow under 1 year—no entry.

Sow 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.
218	Taylor Bros., Waynesville, Ill	525	446	0.85	Lady Squire

First premium $10, to Lady Squire, exhibited by Taylor Bros., Waynesville, Ill.

REPORT OF COMMITTEE.

The sow to which the committee gave the award was a good specimen of this breed showing fine development for age. A smooth animal, good in ham, back and loin; neat head, jowl, and very little offal to gross weight.

Sow under 1 year—no entry.

LOT 23—POLAND CHINA.

Barrows 1 and under 2 years—3 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.
219	Taylor Bros., Waynesville, Ill	467	483	1.03	McGhee
220	J. A. Countryman, Rochelle, Ill	552	494	0.89	Garfield
221	J. A. Countryman, Rochelle, Ill	501	495	0.98	Arthur
	Average	506	490	0.96	

First premium $10, to Garfield, exhibited by J. A. Countryman, Rochelle, Ill.
Second premium $5, to Arthur, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

This ring comprised three very good entries. The premium hog was a more squarely built and solid animal than the others, remarkably good at all points, finely developed, and promising far more net pork to weight; small head, neat jowl, deep sides and good hams. The second premium hog was also a good animal, but not so fine in style and finish; heavier in the shoulders and not so even as the other.

Barrow under 1 year—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.
222	J. A. Countryman, Rochelle, Ill.	333	327	0.98	Black Prince
223	J. A. Countryman, Rochelle, Ill	185	217	1.17	Eclipse
	Average	259	272	1.07	

First premium $10, to Black Prince, exhibited by J. A. Countryman, Rochelle, Ill.
Second premium $5, to Eclipse, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

Two entries, only, were made in this ring; both, however, were superior specimens.

The first premium was awarded to a squarely-built, well matured animal, for his age, showing fine bone, neat head, good shoulders and sides, and fine hams; very desirable for the butcher.

The second premium was given to a pig six months old, remarkably well matured, lengthy, smooth, fine bone, small head, deep shoulders and sides, and fine hams.

Sow 1 and under 2 years.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.
....	J. A. Countryman, Rochelle, Ill.	395	445	1.12	Jenny Lind

First premium $19, to Jenny Lind, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

But one entry showed in this ring. The committee considered the sow a model, and eminently entitled to the first premium. She was 13 months old, and weighed 445 pounds. Her form and style left nothing to be desired by the butcher. Her head was small and neat, with a clean, light jowl, deep shoulders and sides, and splendid hams, evidently giving a very light quantity of offal to gross weight.

Sow under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.
225	J. A. Countryman, Rochelle, Ill.	333	347	1.04	Topsy
226	J. A. Countryman, Rochelle, Ill.	176	221	1.25	Belle Douglas
227	J. A. Countryman, Rochelle, Ill.	176	221	1.25	May Douglas
	Average	228	263	1.18	

First premium $10, to Topsy, exhibited J. A. Countryman, Rochelle, Ill.
Second premium $5, to Belle Douglas, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

The entries in this ring were all very good sows for their age, showing fine development and very good in nearly all points. The premium sow was superior to the others in style and finish, being very even and well proportioned. The sow taking the second premium was nearly as good as the first, but not quite as desirable for the butcher.

LOT 24—CHESTER WHITE.

Barrow 1 and under 2 years—no entry.

Barrow under 1 year—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds, since birth	Name of Animal.
228	Taylor Bros., Waynesville, Ill.	224	179	0.79	George
229	Scheidt & Davis, Dyer, Ind.	312	317	1.01	Billy
	Average	268	248	0.90	

First premium $10, to Billy, exhibited by Scheidt & Davis, Dyer, Ind.
Second premium $5, to George, exhibited by Taylor Bros., Waynesville, Ill.

REPORT OF COMMITTEE.

The premium for the best animal in this ring was awarded to a well matured hog for his age; a square and finely proportioned animal, having a very good head, shoulders and back, and fine hams; small bone for age and size, and carrying a small percentage of waste to gross weight. The second premium was given to a younger animal, but showing fully as great development to his age as the first premium hog.

Sow 1 and under 2 years—1 entry.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.
230	Taylor Bros., Waynesville, Ill.	375	381	1.01	Betsey

First premium $10, to Betsey, exhibited by Taylor Bros., Waynesville, Ill.

REPORT OF COMMITTEE.

The sow to which the committee gave the first premium was thirteen months old, and weighed nearly 400 pounds. She was a fine specimen of the breed; not quite as fat as might be, but very well developed, with a fine head and ear; rather heavy jowls, straight and broad back, good shoulders, deep sides and heavy hams.

Sow under 1 year—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.
231	Taylor Bros., Waynesville, Ill.	245	262	1.06	Maggie
232	J. A. Brown & Son, Decatur, Ill.	241	312	1.29	Nellie
	Average	243	287	1.17	

First premium $10, to Nellie, exhibited by J. A. Brown & Son, Decatur, Ill.
Second premium $5, to Maggie, exhibited by Taylor Bros., Waynesville, Ill.

REPORT OF COMMITTEE.

The entries in this ring were about the same age, and the premium animals very nearly alike at all points, the principal difference being in weight. The first-premium sow was better developed, for her age, than her competitor; had a better shoulder; and was a better animal, from the butcher's stand-point. Her age was a few days over 11 months, and her weight was 312 pounds.

The second-premium animal was somewhat more compact, and had very fine hams; neat in bone, with little offal to gross weight.

LOT 25—ESSEX.

[None exhibited.

LOT 26—GRADES OR CROSSES.

Barrow 1 and under 2 years—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
233	J.A.Countryman, Rochelle, Ill	527	*466	0.88	Billy	Grade Poland China
234	Scheidt & Davis, Dyer, Ind.	508	515	1.01	Hancock	Poland China & Berkshire
		517	490	0.94		

First premium $10, to Hancock, exhibited by Scheidt & Davis, Dyer, Ind.
Second premium $5, to Billy, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

In this ring, the committee awarded the first premium to a barrow, a cross between the Berkshire and Poland China breeds; considering him a model shipper, or packer's hog. He showed great length of carcass; very even lines; fine bone; very neat head and jowl; broad, straight back; good shoulders; deep sides; and splendid hams, well filled down to hock, and finely proportioned throughout.

The hog that took the second prize was the produce of a sire three-fourths Poland China crossed upon a common sow. He was a squarely built, blocky hog; well proportioned; a little too heavy in the shoulders, but with good sides and fine hams; would sustain in slaughtering a small loss, compared to gross weight.

Barrow under 1 year—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
236	Henry Davis, Dyer, Ind.	327	366	1.11	Prince Albert	Grade Victoria
237	Scheidt & Davis, Dyer, Ind.	327	335	1.02	Prince Alfred	Grade Victoria
	Average	327	350	1.07		

First premium $10, to Prince Albert, exhibited by Henry Davis, Dyer, Ind.
Second premium $5, to Prince Alfred, exhibited by Scheidt & Davis, Dyer, Ind.

REPORT OF COMMITTEE.

The hogs exhibited in this ring were very evenly mated. Both of the premium animals were the result of crossing a Poland and Berkshire cross upon another cross between Chester White and Suffolk. They were very well developed, for age; fine in head, ear and jowl; squarely built; with good shoulders, sides and hams; and indicating that when dressed, the proportion of lean meat would be quite if not fully equal to a Berkshire.

The committee considered the first-premium hog somewhat more even and symmetrical, but that both nearly approached the standard of excellence desired by the butcher.

Sow 1 and under 2 years—2 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
238	Taylor Bros., Waynesville, Ill.	386	324	0.83	Lady Wilson	Grade Suffolk
239	Taylor Bros., Waynesville, Ill.	392	288	0.73	Jenny Lind	" "
		389	306	0.78		

First premium $10, to Jenny Lind, exhibited by Taylor Bros., Waynesville, Ill.

Second premium $5, to Lady Wilson, exhibited by Taylor Bros., Waynesville, Ill.

REPORT OF COMMITTEE.

The sow to which the committee gave the first premium was a cross between the Suffolk and Chester White breeds, and the result of the second cross. She was a very fine animal, smooth and square, with small head and ear, heavy jowl, deep sides, broad back, straight, small leg, and fine in bone, with very good hams—a good shipper's and packer's animal. There was very little difference between the first and second prize animals, the latter being a trifle less symmetrical, in the judgment of the committee.

Sow under 1 year old—2 entries

No. Animal	Exhibiter.	Age in days Nov. 11, 1880	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
240	Scheidt & Davis, Dyer, Ind.	347	378	1.08	Beauty	Grade Victoria.
241	Scheidt & Davis, Dyer, Ind.	295	329	1.11	Topsey	Grade Victoria.
	Average	321	353	1.09		

First premium $10, to Topsey, exhibited by Scheidt & Davis, Dyer, Ind.

Second premium $5, to Beauty, exhibited by Scheidt & Davis, Dyer, Ind.

REPORT OF COMMITTEE.

This ring comprised but two entries, both being very good specimens of grade stock.

The premium sow was sired by a half-bred Berkshire and Chester-white grade, and her dam was a half-bred Poland-China and Victoria. She was an animal of fine form and finish, neat, small head and ear, good jowl, shoulders fine, level back, straight sides and fine hams; in the judgment of the committee is a very excellent pig for the butcher.

The second premium was given to a sow nearly as good.

LOT 27—SWEEPSTAKES.

OPEN TO ALL.

Barrow 1 and under 2 years—5 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal	Breed.
219	Taylor Bros., Waynesville, Ill.	467	483	1.03	McGhee	Poland
234	Scheidt & Davis, Dyer, Ind.	508	515	1.01	Hancock	Grade Berkshire.
220	J. A. Countryman, Rochelle, Ill	552	494	0.89	Garfield	Poland China
221	J. A. Countryman, Rochelle, Ill	501	495	0.98	Arthur	" "
233	J. A. Countryman, Rochelle, Ill	527	466	0.88	Billy	Gr. Poland China
	Average	511	490	0.95		

Premium $25 00, to Garfield, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

All of the entries in this ring were of superior quality, and some time was required in making the award. All were well matured animals, of fine form and finish. The premium hog was very smooth and even, with straight lines; very fine in head and shoulders, sides, loin and hams.

Barrow under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
236	Henry Davis, Dyer, Ind	327	366	1.11	Prince Albert	Grade Victoria
222	J. A. Countryman, Rochelle, Ill	333	327	0.98	Black Prince	Poland China
223	J. A. Countryman, Rochelle, Ill	185	217	1.17	Eclipse	" "
	Average	281	303	1.08		

Premium $25 00, to Prince Albert, exhibited by Henry Davis, Dyer, Ind.

REPORT OF COMMITTEE.

There were three entries, all very nearly alike in quality, and showing fine development for age.

The committee gave the award to a smooth and well proportioned pig, somewhat better than his competitors in shoulders, loin and hams.

Sow 1 and under 2 years—3 entries.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
218	Taylor Bros., Waynesville, Ill.	525	446	0.85	Lady Squire	Berkshire
238	Taylor Bros., Waynesville, Ill.	386	324	0.83	Lady Wilson	Grade Suffolk
224	J. A. Countryman, Rochelle, Ill	395	445	1.12	Jennie Lind	Poland China
	Average	435	405	0.93		

Premium $25 00, to Jennie Lind, exhibited by J. A. Countryman, Rochelle, Ill.

REPORT OF COMMITTEE.

This premium was taken by the sow Jenny Lind, which the committee pronounced a model for shippers and packers, as well as for breeders. She was very square, low, broad and even, with exceedingly neat head and ear, splendid shoulders, sides and hams, and a very small quantity of offal to gross weight. She was 13 months old, and weighed 445 pounds.

Sow under 1 year.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
240	Scheidt & Davis, Dyer, Ind.	347	378	1.08	Beauty	Victoria
232	J. A. Brown & Son, Decatur.	241	312	1.29	Nellie	Chester White
225	J. A. Countryman, Rochelle	333	347	1.04	Topsy	Poland China
226	J. A. Countryman, Rochelle	176	221	1 25	Belle Douglas	" "
241	Scheidt & Davis, Dyer, Ind.	295	329	1.11	Topsy	Victoria
	Average	278	317	1.15		

Premium $25, to Beauty, exhibited by Scheidt & Davis, Dyer, Ind.

REPORT OF COMMITTEE.

Six entries comprised this ring, and all the animals were well fatted and well formed. The premium was awarded to the sow Beauty, she being somewhat better in head, loin and ham than the others.

LOT 28—GRAND SWEEPSTAKES.

OPEN TO BARROWS OR SOWS.

No. Animal	Exhibiter.	Age in days	Weight Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
238	Taylor Bros., Waynesville, Ill	386	324	0.83	Lady Wilson	Grade Suffolk
219	Taylor Bros., Waynesville, Ill	467	483	1.03	McGhee	Poland
236	Henry Davis, Dyer, Ind	327	366	1.11	Prince Albert	Grade Victoria
232	J. A. Brown & Son, Decatur	241	312	1.29	Nellie	Chester White
220	J. A. Countryman, Rochelle	552	494	0.89	Garfield	Poland China
221	J. A. Countryman, Rochelle	501	495	0.98	Arthur	" "
224	J. A. Countryman, Rochelle	395	445	1.12	Jenny Lind	" "
222	J. A. Countryman, Rochelle	333	327	0.98	Black Prince	" "
225	J. A. Countryman, Rochelle	333	347	1.04	Topsy	" "
223	J. A. Countryman, Rochelle	185	217	1.17	Eclipse	" "
226	J. A. Countryman, Rochelle	176	221	1.25	Belle Douglas	" "
233	J. A. Countryman, Rochelle	527	466	0.88	Billy	Gr. Poland China
241	Scheidt & Davis, Dyer, Ind	295	329	1.11	Topsy	Victoria
234	Scheidt & Davis, Dyer, Ind	508	515	1.01	Hancock	Grade Berkshire.
	Average	373	381	1.04		

Premium $50, to Jenny Lind, exhibited by J. A. Countryman, Rochelle, Ill.

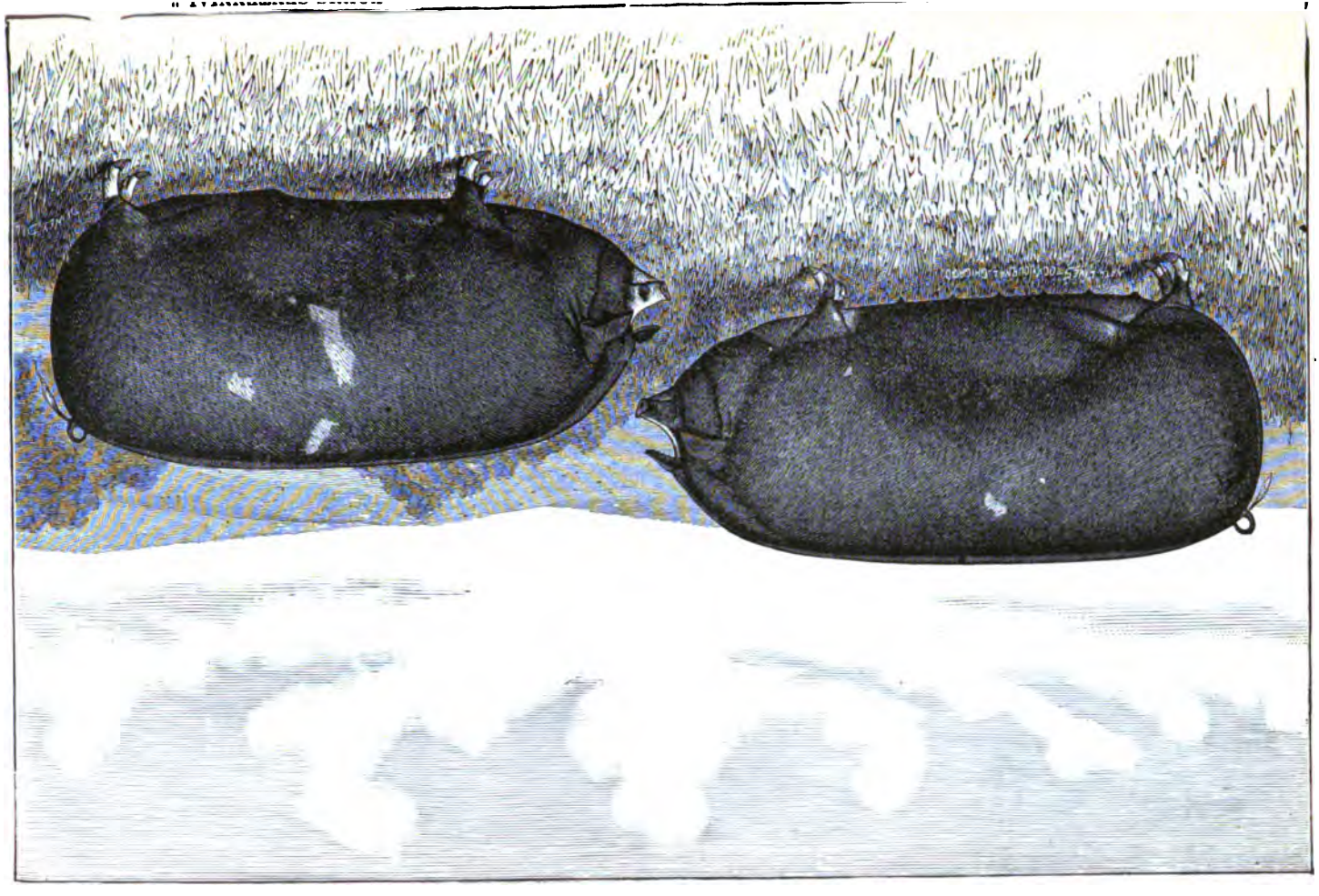
REPORT OF COMMITTEE.

This ring was composed of the very best animals in the show, comprising an exceedingly fine exhibit. The committee was unanimous in awarding the prize to the sow Jenny Lind.

LOT 29—HEAVIEST FAT HOG.

No. Animal	Exhibiter.	Age in days	Weight, Nov. 11, 1880	Average gain per day in pounds since birth	Name of Animal.	Breed.
220	J. A. Countryman, Rochelle	552	494	0.89	Garfield	Poland China
234	Scheidt & Davis, Dyer, Ind	527	513	1.01	Hancock	Grade Berkshire.
	Average	539	503	0.95		

Premium $50, to Hancock, exhibited by Scheidt & Davis, Dyer, Ind.



LIST OF AWARDS.

THIRD ANNUAL FAT STOCK SHOW,

CHICAGO, NOVEMBER 15-20, 1880.

CLASS A—CATTLE.

SAMUEL DYSART, *Superintendent.*

LOT 1—SHORTHORNS—THOROUGHBREDS.

Best Steer 3 and under 4 years—6 entries.

First premium, Wm. Sandusky, Catlin, Ill.	$25 00
Second premium, J. D. Gillett, Elkhart, Ill.	15 00

Best Steer 2 and under 3 years—6 entries.

First premium, John B. Sherman, Chicago, Ill.	25 00
Second premium, John B. Sherman, Chicago, Ill.	15 00

Best Steer 1 and under 2 years—1 entry.

First premium, J. S. Highmore, Rochester, Ill.	25 00

Best Cow 3 years old or over—3 entries.

First premium, W. Scott, Wyoming, Ill.	25 00
Second premium, R. Geo. Dun, Mechanicsburg, Ohio	15 00

LOT 2—HEREFORDS—THOROUGHBREDS.

Best Steer 3 and under 4 years—1 entry.

First premium, T. L. Miller, Beecher, Ill.	25 00

Best Steer 2 and under 3 years—3 entries.

First premium, T. L. Miller, Beecher, Ill.	25 00
Second premium, T. L. Miller, Beecher, Ill.	15 00

Best Steer 1 and under 2 years—1 entry.

First premium, G. S. Burleigh, Mechanicsville, Iowa	25 00

Best Cow 3 years old or over—1 entry.

First premium, T. L. Miller, Beecher, Ill.	25 00

LOT 3—DEVONS—THOROUGHBREDS.

Best Steer 3 and under 4 years—2 entries.

First premium, Thos. Bidwell, Gurnee, Ill..... $25 00
Second premium, Thos. Bidwell, Gurnee, Ill..... 15 00

Best Steer 2 and under 3 years—1 entry.

First premium, L. F. Ross, Avon, Ill..... 25 00

Best Steer 1 and under 2 years—no entries.

Best Cow 3 years old or over—no entries.

LOT 4—OTHER PURE BEEF BREEDS (not named)—no entries.

LOT 5—GRADES OR CROSSES.

Best Steer 3 and under 4 years—19 entries.

First premium, J. H. Graves, Chilesburg, Ky..... 25 00
Second premium, C. M. Culbertson, Chicago, Ill..... 15 00

Best Steer 2 and under 3 years—20 entries.

First premium, A. F. Moore, Polo, Ill..... 25 00
Second premium, J. H. Potts & Son, Jacksonville, Ill..... 15 00

Best Steer 1 and under 2 years—22 entries.

First premium, D. M. Moninger, Albion, Iowa..... 25 00
Second premium, T. L. Miller, Beecher, Ill..... 15 00

Best cow 3 years old or over—1 entry.

First premium, H. A. Bassett, Jefferson, Ill..... 25 00

LOT 6—SWEEPSTAKES RINGS.

Best Steer 3 and under 4 years—20 entries.

Premium, C. M. Culbertson, Chicago, Ill..... 50 00

Best Steer 2 and under 3 years—23 entries.

Premium, T. L. Miller, Beecher, Ill..... 50 00

Best Steer 1 and under 2 years—14 entries.

Premium, T. L. Miller, Beecher, Ill..... 50 00

Best Cow 3 years old or over—5 entries.

Premium, W. Scott, Wyoming, Ill..... 50 00

LOT 7—GRAND SWEEPSTAKES.

Best Steer or Cow in the show—58 entries.

Premium, J. H. Graves, Chilesburg, Ky..... 100 00

LOT 8—CAR LOADS.

Best lot of 8 Cattle 3 and under 4 years old.

First premium, J. D. Gillett, Elkhart, Ill..... 150 00
Second premium, J. G. Willard & Son, Harristown, Ill..... 75 00

Best lot of 10 Cattle 2 and under 3 years old.

First premium, J. D. Gillett, Elkhart, Ill..... 150 00

Best lot of 12 Cattle 1 and under 2 years old—1 entry.

First premium, J. D. Gillett, Elkhart, Ill..... 150 00

LOT 9—DRESSED BULLOCKS.

Steer 3 and under 4 years.

Premium, T. L. Miller, Beecher, Ill. $50 00

Steer 2 and under 3 years.

Premium, J. D. Gillett, Elkhart, Ill. 50 00

Steer 1 and under 2 years.

Premium, G. S. Burleigh, Mechanicsville, Iowa 50 00

LOT 10—HEAVIEST FAT STEER—15 entries.

First premium, John B. Sherman, Chicago, Ill. 75 00
Second premium, John Weedman, Farmer City, Ill. 50 00

LOT 11—EARLY MATURITY.

Steer 3 and under 4 years—13 entries.

Premium, J. D. Gillett, Elkhart, Ill. ..... silver cup, value 25 00

Steer 2 and under 3 years—11 entries.

Premium, T. L. Miller, Beecher, Ill. ..... silver cup, value 25 00

Steer 1 and under 2 years—10 entries.

Premium, Cobb & Phillips ..... silver cup, value 25 00

CLASS C—SHEEP.

D. W. VITTUM, *Superintendent.*

LOT 13—LONGWOOLS.

Best Wether 2 and under 3 years.

First premium, Morgan & Cotton, Newman, Ill. $10 00
Second premium, Morgan & Cotton, Newman, Ill. 5 00

Best Wether 1 and under 2 years.

First premium, J. A. Brown & Son, Decatur, Ill. 10 00
Second premium, J. A. Brown & Son, Decatur, Ill. 5 00

Best Wether under 1 year—no entry.

Best Ewe 2 and under 3 years.

First premium, J. A. Brown & Son, Decatur, Ill. 10 00

Best Ewe 1 and under 2 years—no entry.

Best Ewe under 1 year.

Premium, Geo. Hood, Guelph, Canada 10 00

LOT 14—MIDDLE WOOLS.

Best Wether 2 and under 3 years.

First premium, J. H. Potts & Son, Jacksonville, Ill. 10 00
Second premium, J. H. Potts & Son, Jacksonville, Ill. 5 00

Best Wether 1 and under 2 years.

First premium, Morgan & Cotton, Newman, Ill 10 00
Second premium, Morgan & Cotton, Newman, Ill 5 00

Best Wether under 1 year—no entry.

Best Ewe 2 and under 3 years.

First premium, Geo. Pickrell, Wheatfield, Ill.	$10 00
Second premium, Geo. Pickrell, Wheatfield, Ill.	5 00

Best Ewe 1 and under 2 years.

First premium, Morgan & Cotton, Newman Ill.	10 00
Second premium, Geo. Pickrell, Wheatfield, Ill.	5 00

Best Ewe under 1 year.

First premium, Geo. Hood, Guelph, Canada	10 00
Second premium, Taylor Bros., Waynesville, Ill.	5 00

LOT 15—FINE WOOLS.

Best Wether 2 and under 3 years.

Second premium, Taylor Bros., Waynesville, Ill	5 00

Best Wether 1 and under 2 years.

Second premium, Taylor Bros., Waynesville, Ill.	5 00

Best Wether under 1 year—no entry.

Best Ewe 2 and under 3 years.

Second premium, Taylor Bros., Waynesville, Ill	5 00

Best Ewe 1 and under 2 years—no entry.

Best Ewe under 1 year—no entry.

LOT 16—GRADES OR CROSSES.

Best Wether 2 and under 3 years.

First premium, Geo. Pickrell, Wheatfield, Ill.	10 00
Second premium, Geo. Pickrell, Wheatfield, Ill.	5 00

Best Wether 1 and under 2 years.

First premium, Geo. Hood, Guelph, Canada	10 00
Second premium, Geo. Hood, Guelph, Canada	5 00

Best Wether under 1 year.

First premium, Geo. Hood, Guelph, Canada	10 00
Second premium, Taylor Bros, Waynesville, Ill	5 00

Best Ewe 2 and under 3 years.

First premium, Geo. Hood, Guelph, Canada	10 00

Best Ewe 1 and under 2 years.

First premium, Taylor Bros., Waynesville, Ill	10 00

Best Ewe under 1 year.

First premium, Geo. Hood, Guelph, Canada	10 00
Second premium, Geo. Hood, Guelph, Canada	5 00

LOT 17—SWEEPSTAKES.

Best Wether 2 and under 3 years.

Premium, J. H. Potts & Son, Jacksonville, Ill	25 00

Best Wether 1 and under 2 years.

Premium, Frank Wilson, Jackson, Mich	25 00

Best Wether under 1 year.

Premium, Geo. Hood, Guelph, Canada	25 00

Best Ewe 2 and under 3 years.

Premium, Geo. Pickrell, Wheatfield, Ill $25 00

Best Ewe 1 and under 2 years.

Premium, Taylor Bros., Waynesville, Ill 25 00

Best Ewe under 1 year.

Premium, Geo. Hood, Guelph, Canada 25 00

LOT 18—GRAND SWEEPSTAKES.

Best Wether or Ewe in the Show.

Premium, J. H. Potts & Son, Jacksonville, Ill 30 00

LOT 19—HEAVIEST FAT SHEEP.

Wether or Ewe any age.

Premium, Geo. Hood, Guelph, Canada 50 00

LOT 20—CAR-LOADS.

Best car-load 30 Fat Wethers 2 and under 3 years.

First premium, Geo. Pickrell, Wheatfield, Ill 60 00
Second premium, John Hudson, Moawequa, Ill 30 00

LOT 21—DRESSED SHEEP.

Wether 2 and under 3 years.

Premium, Geo. Pickrell, Wheatfield, Ill ..... Silver medal.

Wether 1 and under 2 years.

Premium, Geo. Pickrell, Wheatfield, Ill ..... Silver medal.

Wether under 1 year—no entry.

Ewe 2 and under 3 years—no entry.

Ewe 1 and under 2 years—no entry.

Ewe under 1 year—no entry.

CLASS D—SWINE.

WM. VOORHIES, JR., *Superintendent.*

LOT 22—BERKSHIRES.

Best Barrow 1 and under 2 years—no entry.

Best Barrow under 1 year—no entry.

Best Sow 1 and under 2 years.

Premium, Taylor Bros., Waynesville, Ill $10 00

Best Sow under 1 year—no entry.

LOT 23—POLAND CHINA.

Best Barrow 1 and under 2 years.

First premium, J. A. Countryman, Rochelle, Ill 10 00
Second premium, J. A. Countryman, Rochelle, Ill 5 00

Best Barrow under 1 year.

First premium, J. A. Countryman, Rochelle, Ill $10 00
Second premium, J. A. Countryman, Rochelle, Ill 5 00

Best Sow 1 and under 2 years.

First premium, J. A. Countryman, Rochelle, Ill 10 00

Best Sow under 1 year.

First premium, J. A. Countryman, Rochelle, Ill 10 00
Second premium, J. A. Countryman, Rochelle, Ill 5 00

LOT 24—CHESTER WHITES.

Best Barrow 1 and under 2 years—no entries.

Best Barrow under 1 year.

First premium, Taylor Bros, Waynesville, Ill 10 00
Second premium, Scheidt & Davis, Dyer, Ind 5 00

Best Sow 1 and under 2 years.

First premium, Taylor Bros., Waynesville, Ill 10 00

Best Sow under 1 year.

First premium, J. A. Brown & Son, Decatur, Ill 10 00
Second premium, Taylor Bros., Waynesville, Ill 5 00

LOT 25—ESSEX.

Best Barrow 1 and under 2 years—no entry.

Best Barrow under 1 year—no entry.

Best Sow 1 and under 2 years—no entry.

Best Sow under 1 year—no entry.

LOT 26—GRADES AND CROSSES.

Barrow 1 and under 2 years.

First premium, Scheidt & Davis, Dyer, Ind 10 00
Second premium, J. A. Countryman, Rochelle, Ill 5 00

Best Barrow under 1 year.

First premium, Henry Davis, Dyer, Ind 10 00
Second premium, Scheidt & Davis, Dyer, Ind 5 00

Best Sow 1 and under 2 years.

First premium, Taylor Bros., Waynesville, Ill 10 00
Second premium, Taylor Bros., Waynesville, Ill 5 00

Best Sow under 1 year.

First premium, Scheidt & Davis, Dyer, Ind 10 00
Second premium, Scheidt & Davis, Dyer, Ind 5 00

LOT 27—SWEEPSTAKES.

Best Barrow 1 and under 2 years.

First premium, J. A. Countryman, Rochelle, Ill 25 00

Best Barrow under 1 year.

Premium, Henry Davis, Dyer, Ind 25 00

Best Sow 1 and under 2 years.

Premium, J. A. Countryman, Rochelle, Ill 25 00

Best Sow under 1 year.

Premium, Scheidt & Davis, Dyer, Ind $25 00

LOT 28—GRAND SWEEPSTAKES.

Best Barrow or Sow in the show.

Premium, J. A. Countryman, Rochelle, Ill 50 00

LOT 29—HEAVIEST FAT HOG.

Heaviest Barrow or Sow, any age.

Premium, Scheidt & Davis, Dyer, Ind 50 00

LOT 30—CAR-LOADS.

Best car-load 30 fat Barrows 1 and under 2 years—no entry.

CLASS E—POULTRY.

H. D. EMERY, *Superintendent.*

LOT 31—FAT POULTRY—Alive.

Best Turkey Cock.

Premium, Bush & Blodgett, Downer's Grove, Ill $5 00

Best Turkey Hen.

Premium, Bush & Blodgett, Downer's Grove, Ill 5 00

Best Gander.

Premium, Henry Davis, Dyer, Ind 5 00

Best Goose.

Premium, Henry Davis, Dyer, Ind 5 00

Best Cock.

Premium, J. B. Foot, Norwood Park, Ill 5 00

Best Hen.

Premium, Scheidt & Davis, Dyer, Ind 5 00

Best Capon—no entry.

Best Drake.

Premium, Bush & Blodgett, Downer's Grove, Ill 5 00

Best Duck.

Premium, Bush & Blodgett, Downer's Grove, Ill 5 00

Best display of live fat Poultry.

Premium, Bush & Blodgett, Downer's Grove, Ill 20 00

LOT 32—WILD GAME—Birds and Animals.

Best display of dead Game—Varieties to be labeled with correct names—no entry.

SECRETARY'S REPORT.

The results of the three Fat Stock Shows are briefly given herewith, for convenience of ready reference, and to enable the reader to critically examine and compare the different rings of the various breeds of stock exhibited at these shows.

The pure breeds and crosses will be reported upon in the order they appear in the classification of premiums.

The averages of the rings, of the several ages of animals and breeds, for the three years, are first given, followed by table giving age, weight and gain of the first-premium animals exhibited therein each year.

The excellent results obtained by feeders of the animals exhibited at the first two Fat Stock Shows have been improved upon, in several rings, by the stock exhibited in 1880.

The great interest manifested by some exhibiters in the matter of early maturity has not caused the intelligent feeder to ignore the more essential matter of quality, which has and always will influence the awards of committees. The question of early maturity, other essential qualities being equal, would doubtless influence the award in favor of the animal making the largest average gain per day since birth.

In compiling the following statistics, it has been the purpose of the writer simply to give the official figures, without comment; leaving the reader free to draw his own inferences as to the superior merits of the respective meat breeds of animals exhibited:

CLASS A—CATTLE.

SHORTHORNS.

Shorthorn Steer 4 years old or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	2	1,891	2,262	1.19
1879	5	1,861	2,358	1.28

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	1,880	2,065	1.11
1879	1,578	2,240	1.42

Shorthorn Steer 3 and under 4 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	2	1,250	2,067	1.67
1879	2	1,326	2,039	1.53
1880	4	1,300	2,172	1.66

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	1,290	2,115	1.65
1879	1,335	2,060	1.54
1880	1,367	2,350	1.71

Shorthorn Steer 2 and under 3 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	5	934	1,621	1.73
1879	3	871	1,624	1.86
1880	5	942	1,801	1.92

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	969	1,705	1.76
1879	845	1,636	1.93
1880	1,064	1,815	1.70

Shorthorn Steers 1 and under 2 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	3	672	1,385	2.06
1879	5	638	1,267	2.00
1880	1	721	1,590	2.20

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	650	1,480	2.28
1879	701	1,316	1.87
1880	721	1,590	2.20

Shorthorn Cow 3 years old or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	6	2,937	1,722	0.72
1879	8	2,364	1,786	0.81
1880	3	3,031	1,618	0.59

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs since birth.
1878	1,721	2,075	1.20
1879	2,035	1,769	0.86
1880	2,136	1,710	0.80

HEREFORD.

Steer 4 years old or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1878	1	2,692	2,010	0.75
1879	4	1,639	1,994	1.28

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs since birth.
1878	2,692	2,010	0.75
1879	1,677	2,043	1.22

Steer 3 and under 4 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1878	3	1,346	1,735	1.26
1879	2	1,389	1,973	1.41
1880	1	1,183	1,875	1.58

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs since birth.
1878	1,336	1,705	1.20
1879	1,359	1,968	1.44
1880	1,183	1,875	1.58

Hereford Steer 2 and under 3 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1878	1	1,080	1,470	1.36
1879	1	989	1,474	1.57
1880	3	943	1,738	1.85

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs since birth.
1878	1,080	1,470	1.36
1879	939	1,474	1.57
1880	866	1,650	1.91

Hereford Steers 1 and under 2 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878				
1879	3	577	1,230	2.15
1880	1	710	1,115	1.57

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878			
1879	712	1,397	1.96
1880	710	1,115	1.57

Hereford Cow 3 years old or over.

Year.	Entries.	Average age in days.	Average weight	Average gain per day in lbs. since birth.
1878	3	2,179	1,630	0.78
1879	2	3,663	1,615	0.56
1880	1	1,350	1,720	1.27

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	1,677	1,595	0.95
1879	2,018	1,730	0.85
1880	1,350	1,720	1.27

DEVONS.

Steers 4 years or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	2	1,655	1,757	1.06
1879				

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	1,658	1,645	0.99
1879			

Devon Steer 3 and under 4 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	2	1,319	1,565	1.18
1879	1	1,335	1,509	1.12
1880	2	1,330	1,220	0.93

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	1,371	1,655	1.21
1879	1,335	1,509	1.12
1880	1,335	1,270	0.91

Devon Steer 2 and under 3 years.

Year.	Entries.	Average age in days.	Weight.	Average gain per day in lbs. since birth.
1878				
1879				
1880	1	849	1,250	1.46

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878			
1879			
1880	849	1,250	1.46

Devon Steer 1 *and under* 2 *years.*

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878				
1879	1	483	844	1.74
1880				

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878			
1879	483	844	1.74
1880			

Devon Cow 3 *years old or over.*

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	1	1,905	1,200	0.63
1879	2	2,475	1,115	0.51
1880				

FIRST PREMIUM ANIMALS.

Year.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878*			
1879	3,490	1,264	0.36
1880			

*No premium awarded in 1878.

GRADES AND CROSSES.

Steer 4 years and over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	12	1,815	2,491	1.37
1879	17	1,923	2,373	1.25

1878—11 Grade Shorthorns; 1 Grade Hereford.
1879—15 Grade Shorthorns; 1 Grade Devon; 1 Grade Hereford.

FIRST PREMIUM ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	2,0[illegible]8	2,480	1.29
1879	Grade Hereford	1,780	2,134	1.19

Grades and Crosses—Steer 3 and under 4 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	10	1,296	2,032	1.56
1879	29	1,262	1,946	1.18
1880	18	1,267	1,924	1.54

1878—1 Grade Hereford; 9 Grade Shorthorns.
1879—2 Grade Devons; 7 Grade Herefords; 20 Grade Shorthorns.
1880—2 Grade Herefords; 16 Grade Shorthorns.

FIRST PREMIUM ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	1,328	2,185	1.65
1879	Grade Shorthorn	1,294	1,986	1.53
1880	Grade Shorthorn	1,411	2,030	1.44

Grades and Crosses—Steers 2 and under 3 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	13	935	1,651	1.73
1879	31	954	1,710	1.77
1880	20	904	1,721	1.89

1878—11 Grade Shorthorns; 2 Grade Herefords.
1879—31 Grade Shorthorns.
1880—16 Grade Shorthorns; 4 Grade Herefords.

FIRST PREMIUM ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	962	1,885	1.96
1879	Grade Shorthorn	932	1,532	1.64
1880	Grade Shorthorn	940	1,900	2.02

Grades and Crosses—Steer 1 and under 2 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	2	678	1,470	2.16
1879	14	538	1,307	2.42
1880	22	590	1,290	2.20

1878—2 Grade Shorthorns.
1879—14 Grade Shorthorns.
1880—18 Grade Shorthorns; 3 Grade Herefords; 1 Grade Devon.

FIRST PREMIUM ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	656	1,420	2.15
1879	Grade Shorthorn	605	1,196	1.97
1880	Grade Shorthorn	671	1,395	2.07

Grades and Crosses—Cow 3 years old or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878				
1879				
1880	1	4,225	1,770	0.41

FIRST PREMIUM ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878				
1879				
1880	Grade Shorthorn	4,225	1,770	0.41

SWEEPSTAKES.

OPEN TO ALL.

Steers 4 years old or over.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	14	1,896	2,405	1.28
1879	19	1,782	2,330	1.31

1878—2 Shorthorns; 9 Grade Shorthorns; 1 Hereford; 1 Grade Hereford; 1 Devon.
1879—5 Shorthorns; 11 Grade Shorthorns; 2 Herefords; 1 Grade Hereford.

SWEEPSTAKES ANIMALS.

Year.	Breed.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	Shorthorn	1,902	2,440	1.28
1879	Grade Shorthorn	1,573	2,118	1.34

Steers 3 and under 4 years.

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	8	1,229	2,031	1.55
1879	19	1,281	1,965	1.51
1880	18	1,269	1,885	1.49

1878—7 grade Shorthorns; 1 Grade Hereford.
1879—2 Shorthorns; 10 Grade Shorthorns; 2 Herefords; 3 Grade Herefords; 2 Grade Devons.
1880—4 Shorthorns; 8 Grade Shorthorns; 1 Hereford; 3 Grade Herefords; 2 Devons.

SWEEPSTAKES ANIMALS.

Year.	Breed.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	1,328	2,185	1.65
1879	Shorthorn	1,335	2,060	1.54
1880	Grade Hereford	1,310	1,875	1.43

Sweepstakes (open to all) *Steer 2 and under 3 years.*

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1878	13	935	1,651	1.73
1879	21	953	1,705	1.78
1880	22	915	1,752	1.91

1878—5 Shorthorns; 6 Grade Shorthorns; 2 Grade Herefords.
1879—3 Shorthorns; 17 Grade Shorthorns; 1 Hereford.
1880—5 Shorthorns; 9 Grade Shorthorns; 3 Herefords; 4 Grade Herefords; 1 Devon.

SWEEPSTAKES ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	962	1,625	1.69
1879	Grade Shorthorn	932	1,532	1.64
1880	Grade Hereford	832	1.845	2.21

Sweepstakes (open to all) *Steers* 1 *and under* 2 *years.*

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	5	674	1,419	2.10
1879	14	572	1.276	2.25
1880	15	647	1,376	2.13

1878—3 Shorthorns; 2 Grade Shorthorns.
1879—4 Shorthorns; 7 Grade Shorthorns; 2 Herefords; 1 Grade Hereford.
1880—1 Shorthorn; 9 Grade Shorthorns; 1 Hereford; 1 Grade Hereford; 1 Grade Devon; 2 Shorthorn and Hereford.

SWEEPSTAKES ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Shorthorn	650	1,480	2.28
1879	Grade Shorthorn	544	1,300	2.39
1880	Grade Hereford	696	1,580	2.27

Sweepstakes, Cow 3 *years old or over.*

Year.	Entries.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	6	2,282	1,720	0.85
1879	10	2,442	1,728	0.77
1880	5	2,934	1,669	0.68

1878—4 Shorthorns; 2 Herefords.
1879—8 Shorthorns; 1 Hereford; 1 Devon.
1880—3 Shorthorns; 1 Grade Shorthorn; 1 Hereford.

SWEEPSTAKES ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Hereford	1,677	1,595	0.95
1879	Shorthorn	2,035	1,769	0.86
1880	Shorthorn	2,136	1,710	0.80

GRAND SWEEPSTAKES—ANIMALS.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs since birth.
1878	Grade Shorthorn	1,328	2,185	1.65
1879	Grade Shorthorn	1,335	2,060	1.54
1880	Grade Shorthorn	1,701	2,465	1.44

Car-loads, 4 years old or over.

Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	10	1,534	2,245	1.48
1879	6	2,155	2,399	1.13
1879	6	1,599	2,147	1.34
Average	.....	1,764	2,264	1.32

1878—First car, 6 Shorthorns and 4 Grade Shorthorns.
1879—Second car, 2 Shorthorns and 4 Grade Shorthorns.
1879—Third car, 6 Grade Shorthorns.

FIRST PREMIUM CAR-LOAD.

Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	10	1,539	2,245	1.48
1879	6	1,599	2,147	1.34

Car-loads, 3 and under 4 years.

	Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1	1878	10	1,394	2,047	1.48
2	1879	8	1,247	2,017	1.55
3	1879	8	1,261	2,030	1.59
4	1879	8	1,280	1,868	1.45
5	1880	8	1,285	1,922	1.49
6	1880	8	1,255	1,985	1.56
	Average	8	1,287	1,978	1.52

No. 1, 10 Grade Shorthorns; No. 2, 8 Grade Shorthorns; No. 3, 8 Grade Shorthorns; No. 4 1 Hereford, 7 Grade Herefords; No. 5, 8 Grade Shorthorns; No. 6, 8 Grade Shorthorns.

First Premium Car-loads. 3 and under 4 years.

Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	10	1,394	2,047	1.48
1879	8	1,247	2,017	1.55
1880	8	1,255	1,985	1.56

Car-loads, 2 and under 3 years.

Car.	Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs since birth.
1	1878	10	1,025	1,667	1.63
2	1878	10	1,102	1,759	1.60
3	1879	10	965	1,818	1.87
4	1879	10	918	1,695	1.77
5	1879	10	945	1,648	1.74
6	1880	10	9 5	1,705	1.84
	Average		980	1,715	1.74

First car, 10 Grade Shorthorns; second car, 10 Grade Shorthorns; third car, 10 Grade Shorthorns; fourth car, 10 Grade Shorthorns; fifth car, 1 Shorthorn and 9 Grade Shorthorns; sixth car, 10 Grade Shorthorns.

PREMIUM CAR-LOAD.

Year.	No. Steers.	Average age in days.	Average weight.	Average gain per day in lbs. since birth.
1878	10	1,025	1,667	1.63
1879	10	965	1,818	1.87
1880	10	925	1,705	1.84

Car-loads, 1 and under 2 years.

Year.	No. Steers.	Average age in days.	Average weight	Average gain per day in l s. since birth.
1878				
1879	12	541	1,313	2.42
1880	12	549	1,187	2.20
Average		545	1,250	2.31

1879—12 head Grade Shorthorn steers. 1880—12 head Grade Shorthorn steers.

Heaviest Fat Steer.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	2,162	3,155	1.45
1879	Grade Shorthorn	2,403	2,840	1.18
1880	Grade Shorthorn	2,765	3,130	1.13

EARLY MATURITY.

STEERS SHOWING MOST RAPID GROWTH.

Steers 4 years old or over.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Grade Shorthorn	1,663	2,605	1.56
1879	Grade Shorthorn	1,613	2,820	1.74

Steers 3 and under 4 years.

Year.	Breed.	Age in days.	Weight.	Average gain pe day in lbs. since birth.
1878	Grade Shorthorn	1,298	2,305	1.70
1879	Grade Shorthorn	1,269	2,307	1.81
1880	Grade Shorthorn	1,250	2,215	1.77

Steers 2 and under 3 years.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Shorthorn	783	1,585	2.02
1879	Grade Shorthorn	977	2,081	2.12
1880	Grade Hereford	832	1,845	2.21

Steers 1 and under 2 years.

Year.	Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
1878	Shorthorn	650	1,480	2.28
1879	Grade Shorthorn	513	1,373	2.67
1880	Grade Shorthorn	585	1,450	2.47

COMPARISON FIRST PRIZE ANIMALS OF THE SEVERAL BREEDS OF CATTHE—EXHIBITED IN 1880.

Steers 3 and under 4 years.

Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
Shorthorn	1,367	2,350	1.71
Hereford	1,183	1,875	1.58
Devon	1,305	1,270	0.97
Grades or Crosses	1,046	2,030	1.94

Steers 2 and under 3 years.

Breed.	Age in days.	Weight.	Average gain per day in lbs since birth.
Shorthorn	1,064	1,815	1.70
Hereford	866	1,650	1.91
Devon	849	1,250	1.46
Grades or Crosses	940	1,900	2.02

Steers 1 and under 2 years.

Breed.	Age in days.	Weight.	Average gain per day in lbs since birth.
Shorthorn	721	1,590	2.20
Hereford	710	1,115	1.57
Devon			
Grades or Crosses	671	1,395	2.07

Cows 3 years old or over.

Breed.	Age in days.	Weight.	Average gain per day in lbs. since birth.
Shorthorn	2,136	1,710	0.80
Hereford	1,350	1,720	1.27
Devon			
Grades or Crosses	4,225	1,770	0.41

DRESSED BULLOCKS.

Steer 3 and under 4 years.

Name of Steer.	Breed.	Weight at home	Live weight at slaughter	Weight dressed carcass	Per cent. net carcass to gross or live weight	Weight, carcass, hide and tallow	Per cent. profitable wt. carcass, hide and tallow, to gr. or live wt.	Tallow	Hide	Left fore quarter	Right fore quarter	Left hind quarter	Right hind quarter	Head	Feet	Paunch and guts	Liver, head, tongue, pluck, beef cheeks	Blood and shrinkage	Offal, or parts other than carcass, hide and tallow	Per cent. offal to live weight
Mossy Coat	Grade Hereford	1,860	1,812½	1,256	69.29	1,540	84.96	180	104	331	320	300	305	32	19	84	61½	75	271½	15.04
Chub	Grade Shorthorn	1,600	1,512½	1,037½	68.59	1,274½	84.26	150	87	285	285	280	237½	27½	16½	75	47½	71½	238	15.74
Alex	Hereford	1,910	1,850	1,250½	67.59	1,545½	83.54	184	111	327½	318	295	310	32½	18½	120	64	69½	304½	16.46
1880	Average, 3 steers	1,790	1,725	1,181⅓	68.49	1,453⅓	84.25	171	100⅔	314½	307⅔	275	284⅙	30⅔	18	93	57⅔	72	271½	15.75
1879	Average, 3 steers	.....	1,790	1,183	66.06	1,456	81.34	177	97	318	310	282	272	50	.....	.....	.....	.....	.....	.....

FIRST PREMIUM ANIMALS.

1880	Grade Hereford	1,910	1,850	1,250½	67.59	1,545½	83.51	184	111	327½	318	295	310	32½	18½	120	64	69½	304½	16.46
1879	Hereford	.....	1,963	1,317	67.09	1,618	82.42	195	106	371	354	305	287	55	19	129	65	77	345	17.58

9.98 per cent. tallow estimated to live weight, which has been deducted from weight of paunch, guts and tallow.

DRESSED BULLOCKS.

Steers 2 and under 3 years.

Name of Steer.	Breed.	Weight at home	Live weight at slaughter	Weight dressed carcass	Per cent. net carcass to gross or live weight	Weight carcass hide and tallow	Per cent. profitable wt. carcass, hide and tallow, to gr. or live wt.	Tallow	Hide	Left fore quarter	Right fore quarter	Left hind quarter	Right hind quarter	Head	Feet	Paunch and guts	Liver, heart, tongue, pluck, beef cheeks	Blood and shrinkage	Offal, or parts other than carcass, hide an tallow	Per cent. of offal to live weight
Putnam	Grade Hereford	1,652	1,607½	1,050	65.31	1,300½	80.90	160	90½	272½	272½	256	249	28	16	137	55	65	307	19.10
Blank	Grade Shorthorn	1,560	1,461	974½	66.70	1,209½	82.78	145	90	260	253½	227½	233½	28	20	104	47	52½	251½	17.22
Average		1,606	1,534¼	1,012¼	66.00	1,255	81.84	152½	90¼	266¼	263	241¾	241¼	28	18	120½	51	58¾	279¼	18.16

FIRST PREMIUM ANIMALS.

1880	Grade Shorthorn	1,560	1,461	974½	66.70	1,209½	82.78	145	90	260	253½	227½	233½	28	20	104	47	52½	251½	17.22

9.93 per cent. tallow estimated to live weight, which has been deducted from weight of paunch, guts and tallow.

DRESSED BULLOCKS.

Steers 1 and under 2 years.

Name of Steer.	Breed.	Weight at home	Live weight at slaughter	Weight dressed carcass	Per cent. net carcass to gross or live wt.	Weight, carcass, hide and tallow	Per cent. profitable wt. carcass, hide and tallow to gr. or live wt.	Tallow	Hide	Left fore quarter	Right fore quarter	Left hind quarter	Right hind quarter	Head	Feet	Paunch and guts	Liver, heart, tongue, pluck, beef cheeks	Blood and shrinkage	Offal, or parts other than carcass, hide and tallow	Per cent. of offal to live weight
Monroe	H'ford & Shorth'n	1,265	1,217	816½	67.09	1,021½	83.93	121	84	206	203½	203½	203½	23	15	63½	46	48	195½	16.07

9.93 per cent. tallow estimated to live weight, which has been deducted from weight of paunch, guts and tallow.

Average weights of the rings of the various breeds of Cattle and their crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Breeds.	Steers 4 years old or over...	Steers 3 years old and under 4 years.....	Steers 2 years old and under 3 years.....	Steers 1 year old and under 2 years.....	Cow 3 years old or over...
Shorthorn, 1878	2,262	2,087	1,621	1,385	1,723
Shorthorn, 1879	2,358	2,039	1,624	1,267	1,786
Shorthorn, 1880	.....	2,172	1,801	1,590	1,618
Average	2,310	2,099	1,682	1,414	1,709
Hereford, 1878	2,010	1,735	1,470	.....	1,630
Hereford, 1879	1,994	1,973	1,474	1,230	1,615
Hereford, 1880	.....	1,875	1,738	1,115	1,720
Average	2,002	1,861	1,560	1,172	1,655
Devon, 1878	1,757	1,565	.....	.....	1,200
Devon, 1879	.....	1,509	.....	844	1,115
Devon, 1880	.....	1,220	1,250	.....	.....
Average	1,757	1,431	1,250	844	1,157
Grades or Crosses, 1878	2,491	2,032	1,650	1,470	.....
Grades or Crosses, 1879	2,373	1,946	1,710	1,307	.....
Grades or Crosses, 1880	.....	1,924	1,721	1,290	1,770
Average	2,432	1,967	1,694	1,356	1,770

Consolidated average weights of the rings of the various breeds of Cattle and their crosses, exhibited in 1878, 1879 and 1880:

Breed.	Steer 4 years old or over...	Steer 3 years old and under 4 years.....	Steer 2 years old and under 3 years.....	Steer 1 year old and under 2 years.....	Cow 3 years old or over...
Shorthorn	2,310	2,099	1,682	1,414	1,709
Hereford	2,002	1,861	1,560	1,172	1,655
Devon	1,757	1,431	1,250	844	1,157
Grades or Crosses	2,432	1,967	1,694	1,356	1,770

CLASS C—SHEEP.

Average weights in the rings of the various breeds of Sheep and their crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Breed.	Wether 2 years old or over	Wether 1 and under 2 years old	Wether under 1 year old	Ewe 2 years old or over	Ewe 1 and under 2 years	Ewe under 1 year old
Cotswold, 1878		224		306		130
Cotswold, 1879	243	194	150	270	228	132
Cotswold, 1880	236	196	114	271		
Average	239	204	132	282	228	131
Other Long Wools, 1878						
Other Long Wools, 1879	266					113
Other Long Wools, 1880	281					111
Average	274					112
Southdown, 1878						
Southdown, 1879	178	160	94	171	128	100
Southdown, 1880	219	166	107	173	132	95
Average	198	163	100	172	130	97
Other Middle Wools, 1878						
Other Middle Wools, 1879	213			213	185	
Other Middle Wools, 1880		184			199	89
Average	213	184		213	192	89
American Merino, 1878						
American Merino, 1879						
American Merino, 1880	139	112	75	99	78	
Average	139	112	75	99	78	
Other Fine Wools, 1878						
Other Fine Wools, 1879						
Other Fine Wools, 1880						
Average						
Grades and Crosses, 1878						
Grades and Crosses, 1879	213	177	128	215	160	125
Grades and Crosses, 1880	219	217	118	232	171	118
Average	211	197	123	223	165	121

Consolidated average weights of the rings of the various breeds of Sheep and their crosses. exhibited in 1878, 1879 and 1880:

Breed.	Wether 2 years old or over..	Wether 1 and under 2 years old	Wether under 1 year old.....	Ewe 2 years old or over..	Ewe 1 and under 2 years..	Ewe under 1 year old.....
Cotswold	239	204	132	282	228	131
Other Long Wools	274	.....	.....	.....	.....	113
Southdown	198	163	100	172	130	97
Other Middle Wools	213	184	.....	213	192	89
American Merino	139	112	75	99	78	.....
Other Fine Wools	.....	.....	.....	.....	.....	.....
Grades and Crosses	211	197	123	223	165	121

CLASS D—SWINE.

Average weights of the rings of the various breeds of Hogs and their crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Show:

Breed.	Barrow 2 years old or over..	Barrow 1 and under 2 years	Barrow under 1 yr. and over six months..	Barrow under 6 months	Sow 2 years old or over.....	Sow 1 and under 2 yrs. old.	Sow under 1 year and over 6 months	Sow under 6 months .....
Berkshire, 1878	.....	.....	.....	.....	.....	452	.....	.....
Berkshire, 1879	.....	469	.....	190	635	510	351	162
Berkshire, 1880	.....	.....	.....	.....	.....	446	.....	.....
Average	.....	469	.....	190	635	469	351	162
Poland China, 1878	651	501	379	192	577	.....	.....	203
Poland China, 1879	745	521	330	193	624	484	339	147
Poland China, 1880	.....	490	272	.....	.....	445	263	.....
Average	698	504	327	192	100	464	301	175
Chester White, 1878	644	.....	.....	.....	.....	.....	.....	.....
Chester White, 1879	.....	.....	.....	.....	.....	.....	.....	.....
Chester White, 1880	.....	248	.....	.....	.....	381	287	.....
Average	644	248	.....	.....	.....	381	287	.....
Other Large Breeds, 1878	.....	.....	.....	.....	.....	.....	.....	.....
Other Large Breeds, 1879	.....	.....	.....	.....	.....	.....	.....	.....
Other Large Breeds, 1880	.....	.....	.....	.....	.....	.....	.....	.....
Average	.....	.....	.....	.....	.....	.....	.....	.....
Essex, 1878	.....	.....	.....	.....	.....	470	.....	.....
Essex, 1879	472	295	.....	162	440	276	317	153
Essex, 1880	.....	.....	.....	.....	.....	.....	.....	.....
Average	472	295	.....	162	440	373	317	153
Other Small Breeds, 1878	.....	.....	.....	.....	.....	.....	.....	.....
Other Small Breeds, 1879	.....	.....	.....	.....	.....	410	370	.....
Other Small Breeds, 1880	.....	.....	.....	.....	.....	.....	.....	.....
Average	.....	.....	.....	.....	.....	410	370	.....

Class D—Swine—Continued.

Breed.	Barrow 2 years old or over	Barrow 1 and under 2 years	Barrow under 1 yr. and over 6 months	Barrow under 6 months	Sow 2 years old or over	Sow 1 and under 2 yrs. old	Sow under 1 year and over 6 months	Sow under 6 months
Grades and Crosses, 1878	.....	522	298	.....	.....	.....	.....	.....
Grades and Crosses, 1879	589	436	361	.....	620	478	365	.....
Grades and Crosses, 1880	.....	490	350	.....	.....	306	353	.....
Average	589	482	336	.....	620	392	359	.....

Consolidated average weights of the rings of the various breeds of Hogs and their crosses, exhibited in 1878, 1879 and 1880:

Breed.	Barrow 2 years old or over	Barrow 1 and under 2 years	Barrow under 1 yr. and over 6 months	Barrow under 6 months	Sow 2 years old or over	Sow 1 and under 2 yrs. old	Sow under 1 year and over 6 months	Sow under 6 months
Berkshire	.....	469	.....	190	635	469	351	162
Poland China	698	504	327	192	600	464	301	175
Chester White	644	248	.....	.....	.....	381	287	.....
Other Large Breeds	.....	.....	.....	.....	.....	.....	.....	.....
Essex	472	295	.....	162	440	373	317	153
Other Small Breeds	.....	.....	.....	.....	.....	410	370	.....
Grades and Crosses	589	482	336	.....	620	392	359	.....

ROLL OF HONOR.

The following table gives the ages and weights of steers exhibited at the three Fat Stock Shows (nearest the ages named) that have made the largest average gain per day since birth.

The representative animals named in the list are justly entitled to retain their places of honor until at some future shows they are excelled in the matter of early maturity.

Of the 31 animals included in the table, the three Fat Stock Shows are represented as follows: 1878, 6 steers; 1879, 10 steers; 1880, 15 steers.

The number of the various breeds and crosses in the table are as follows: 10 Shorthorns, 20 Grade Shorthorns, 1 Grade Hereford.

It will be seen that each succeeding show has an increased number of animals represented on this list, which is evidence that a better class of cattle is shown each year, so far as relates to early maturity.

Roll of Honor.

Month, 30 days.	No. days	Age of steer in days nearest to time named.	Breed.	Weight.	Average gain per day in pounds.	Exhibited. Year.	Exhibited. By.	Name of animal.
			Steers 1 and under 2 years.					
12	360							
13	390							
14	420	422	Grade Shorthorn	1,104	2.61	1880	John D. Gillett	Robinson Crusoe
15	450	453	Grade Shorthorn	1,220	2.69	1880	John D. Gillett	Change
16	480	480	Grade Hereford	1,152	2.40	1879	T. L. Miller	Putnam
17	510	513	Grade Shorthorn	1,373	2.67	1879	John D. Gillett	Jim Smith
18	540	544	Grade Shorthorn	1,401	2.57	1879	John D. Gillett	Albert Pell
19	570	564	Grade Shorthorn	1,386	2.46	1879	Amos F. Moore	Hawks
20	600	585	Grade Shorthorn	1,450	2.47	1880	Cobb & Phillips	Sibley
21	630	648	Grade Shorthorn	1,420	2.19	1880	Amos F. Moore	Fred
22	660	650	Shorthorn	1,480	2.28	1878	J. N. Brown Sons	Duke Sangamon
23	690	688	Grade Shorthorn	1,880	2.73	1880	John D. Gillett	Porter
			Steers 2 and under 3 years					
24	720	721	Shorthorn	1,500	2.20	1880	J. S. Highmore	Corporal
25	750							
26	780	783	Shorthorn	1,585	2.02	1878	J. N. Brown Sons	Tom Booth
27	810	814	Shorthorn	1,449	1.78	1879	J. N. Brown Sons	Romeo
28	840	832	Grade Hereford	1,845	2.21	1880	T. L. Miller	Conqueror
29	870	879	Grade Shorthorn	1,705	1.93	1880	John B. Sherman	Jim Blaine
30	900	908	Shorthorn	1,825	2.01	1880	John B. Sherman	Belmont
31	930	940	Grade Shorthorn	1,975	2.10	1880	John B. Gillett	Blood
32	960	962	Grade Shorthorn	1,885	1.96	1878	John B. Gillett	
33	990	977	Grade Shorthorn	2,081	2.12	1879	John B. Gillett	Barney
34	1,020	1,005	Shorthorn	1,925	1.91	1880	Wm. Sandusky	Abe Benic
35	1,050	1,064	Shorthorn	1,815	1.70	1880	John B. Sherman	Boynton
			Steers 3 and under 4 years.					
36	1,080	1,084	Shorthorn	1,950	1.79	1878	Van Meter & Hamilton	Young Mary Steer 8th
37	1,110							
38	1,140	1,132	Grade Shorthorn	2,024	1.76	1879	J. D. Gillett	Cap. Nels. Morris
39	1,170	1,176	Grade Shorthorn	1,940	1.65	1878	H. J. Pauly	Bud Pauly
40	1,200	1,197	Grade Shorthorn	2,005	1.67	1880	Amos F. Moore	Frank
41	1,230	1,220	Shorthorn	2,060	1.69	1878	Van Meter & Hamilton	Young Mary Steer 6th

Roll of Honor—Continued.

Month, 30 days.	No. days	Age of steer in days nearest to time named.	Breed.	Weight.	Average gain per day in pounds.	Exhibited.		Name of animal.
						Year.	By.	
42	1,260	1,269	Grade Shorthorn	2,307	1.81	1879	J. D. Gillett	Downhorn
43	1,290	1,298	Grade Shorthorn	2,305	1.70	1878	Van Meter & Hamilton	Brand Steer
44	1,320	1,304	Grade Shorthorn	2,308	1.75	1879	J. D. Gillett	Barney McCue
45	1,350	1,335	Grade Shorthorn	2,060	1.54	1879	J. H. Graves	Nichols
46	1,380	1,367	Shorthorn	2,350	1.71	1880	Wm. Sandusky	Vermilion
47	1,410	1,411	Grade Shorthorn	2,030	1.44	1880	J. H. Graves	Morrow

CLASS A—CATTLE.

Table giving number of entries of cattle of the several ages and breeds, including grades and crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Cattle.	Shorthorn	Hereford	Devons	Other pure breeds	Grades or Crosses	Sweepstakes	Gr'd Sweepstakes	Car loads	Dressed Bullocks.	Heaviest fat Steer	Early maturity	Total
Steer 4 years or over—												
1878	2	1	2		12	14						31
1879	5	4	1		13	19		2				51
1880												
Steer 3 and under 4 years—												
1878	2	3	2		10	8		2				27
1879	2	2	1		29	20		3				57
1880	4	1	2		18	18		2	3		10	58
Steer 2 and under 3 years—												
1878	5	1			12	13		2				33
1879	4	1			31	21		3				60
1880	5	3	1		20	22		1	2		10	64
Steer 1 and under 2 years—												
1878	3				2	5						10
1879	6	3	1		14	14		1				39
1880	1	1			22	15		1	1		10	51
Cow 3 years or over—												
1878	6	3	1			6						16
1879	8	2	2	1	1	10						24
1880	3	1			1	5			1			11
All ages—												
1878							21					21
1879							63					63
1880							58			13		71
Total—												
1878	18	8	5		36	46	21	4				138
1879	25	12	5	1	88	84	63	9	9	7		303
1880	13	6	3		61	60	58	4	7	13	30	255

CLASS C—SHEEP.

Table giving number of entries of sheep of the several ages and breeds including grades and crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Breed.	Cotswold	Other long wool	Southdown	Other mid'le wools	American Merino	Other fine wools	Grades and crosses	Sweepstakes	Gr'nd sweepstakes	Car loads	Dressed carcass	Heaviest fat sheep	Total
Wether 2 years old or over—													
1878													
1879	5	2	10	4			18	21					60
1880	5	1	9		1		7	14		2	3		42
Wether 1 and under 2 years—													
1878	1							2					3
1879	5		8				12	12					37
1880	2		5	2	2		4	11			3		26
Wether under 1 year—													
1878	2												2
1879	1		2				4	6					13
1880	1		1		1		3	4					10
Ewe 2 years or over—													
1878	3							4					7
1879	16		8	2			10	22					58
1880	1		2		2		1	4					10
Ewe 1 and under 2 years—													
1878								1					1
1879	13		2	1			4	16					36
1880			2	1	2		1	4					10
Ewe under 1 year—													
1878								2					2
1879	4	1	1				2	5					13
1880		1	2	1			3	4					11
All ages—													
1878									9				9
1879									49				49
1880									19			7	26
Total entries—													
1878	6							9	9				24
1879	44	3	31	7			50	82	49	6	12		284
1880	9	2	21	4	8		19	41	19	2	6	7	138

CLASS D—SWINE.

Table giving number of entries of swine of the several ages and breeds, including grades and crosses, exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Breed.	Berkshire	Poland China	Chester White	Other large breeds	Essex	Other small bre'ds	Grades & Crosses	Sweepstakes	Grand Sweepst'ks	Car loads	Heaviest fat hog	Total
Barrow 2 years or over—												
1878		2	1					4				7
1879		2			2			3				7
1880												
Barrow 1 year old and under 2 years—												
1878		2					1	7				10
1879	5	6			2		2	15				30
1880		3					3	5				11
Barrow six months old and under 1 year—												
1878		3					2	5				10
1879		4					2	7				13
1880		2	2				2	3				9
Barrow under 6 months old—												
1878		1						3				4
1879	5	2			1			7				15
1880												
Sow 2 years old or over—												
1878		1										1
1879	1	3			3		3	8				18
1880												
Sow 1 and under 2 years—												
1878	2	1			1							4
1879	1	3			2		2	3				11
1880	1	1	1				2	3				8
Sow 6 months old and under 1 year—												
1878												
1879	3	3				4	1	8				19
1880		3	2				2	5				12
Sow under 6 months old—												
1878		1										1
1879	3	1			2			6				12
1880												
Total—												
1878	2	11	1		1		3	19	13			50
1879	18	24			12	4	10	57	16	1		142
1880	1	9	5				9	16	14		2	56

DISTRIBUTION OF ENTRIES AND PREMIUMS.

The following table gives the number of entries of stock from the several States, and the amount of premiums paid thereon at the Fat Stock Show during the last three years.

The leading meat-producing States have been well represented, and have received premiums in proportion to the number of entries and quality of the stock exhibited.

As the exhibition and the good results become better known to the stockmen throughout the west, it is believed that the number of exhibiters will be largely increased and the quality of stock improved.

The rivalry between exhibiters residing in the different States is such as to ensure, at future Fat Stock Shows, the exhibition of the best specimens of stock to be found in the country.

1878.

State.	Cattle.		Sheep.		Hogs.	
	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.
Illinois	83	$1,320	6	$100	36	$340
Kentucky	26	145				
Missouri	13					
Indiana	9	65			9	50
Iowa	6	25				
Wisconsin	1					
Michigan			5	40	3	20
Ohio					3	20
Canada			13	150		
Total	138	$1,555	24	$290	51	$430

1879.

State.	Cattle.		Sheep.		Hogs.	
	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.
Illinois	260	$1,970	199	$505	112	$305
Kentucky	16	200				
Missouri	4	15				
Indiana	8	50			11	45
Iowa	3	75				
Wisconsin	6		11			
Michigan			16	70	19	105
Ohio	6					
Canada			58	225		
Total	303	$2,310	284	$800	142	$455

1880.

State.	Cattle.		Sheep.		Hogs.	
	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.
Illinois	229	$1,305	110	$345	42	$215
Iowa	13	125				
Kentucky	6	125				
Ohio	5	15				
Indiana	2				14	150
Michigan			2	25		
Canada			26	170		
Total	255	$1,570	138	540	56	365

Total number of entries of Cattle, Sheep and Hogs from the several States, at the Fat Stock Shows of 1878, 1879 and 1880, as well as the total premiums paid thereon for the years named:

State.	Cattle.		Sheep.		Hogs.	
	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.	No. entries.	Amount premiums paid.
Illinois	572	$4,595	315	$950	190	$860
Kentucky	48	470				
Missouri	17	15				
Indiana	19	115			34	245
Iowa	22	225				
Wisconsin	7		11			
Michigan			23	135	22	125
Ohio	11	15			3	20
Canada			97	545		
Total	696	$5,435	446	$1,630	249	$1,250

GOOD PRICES.

Not the least of the important results growing out of the Fat Stock Shows is the attraction to the exhibition and the Union Stock Yards at Chicago, of the leading butchers from Eastern and Western cities for the purchase of Christmas meat.

The competition among butchers for the possession of the stock exhibited at the shows enabled the owners to sell to the best advantage, as will be seen by the following figures.

Butchers, appreciating the advantage of the shows in bringing together annually a large number of the best meat animals to be found in the West, have attended the exhibition from year to year in increased numbers.

The prices obtained for cattle at the last show, so far as reported, are as follows:

SALES.

Seller.	Breed.	Name of Animal.	Age at show, days.	Average gain per day since birth	Weight at show, lbs.	Price received per 100 lbs. gross	Average increase in value per day since birth, cents		*Price obtained over market rates at stock yds., 100 gross
Winfield Scott, Wyoming	Shorthorn cow	Maggie 4th	2,692		1,690	$6 50			$25
Winfield Scott, Wyoming	" "	Forest Queen 2d	2,136		1,710	6 50			25
Hiram A. Bassett, Jefferson	Grade Shorthorn cow	Spot	4,225		1,770	5 60			
L. T. Ross, Avon	Devon steer	Buck	1,701	1.14	1,940	6 50	7.41		25
L. T. Ross, Avon	" "	B. oad	1,711	1.18	2,035	6 50	7.67		25
J. S. Highmore, Rochester	Shorthorn	Robin Hood	782	1.99	1,560	6 00	11.94		
J. S. Highmore, Rochester	"	Corporal	721	2.20	1,590	6 00	13.20		
T. L. Miller, Beecher	Hereford cow	Maid Orleans	1,350	1.27	1,720	12 50	15.87		6 25
T. L. Miller, Beecher	Grade Hereford steer	General	1,079	1.73	1,865	12 50	21 72		6 25
T. L. Miller, Beecher	" " "	Rob Roy	832	1.88	1,565	12 50	23.50		6 25
G. S. Burleigh, Mechanicsville, Iowa	Hereford and Shorthorn	Monroe	642	1.94	1,245	10 00	19.40		3 75
G. S. Burleigh, Mechanicsville, Iowa	Shorthorn and Hereford	Gleason	594	2.34	1,395	10 00	23.40		3 75
G. S. Burleigh, Mechanicsville, Iowa	Hereford	Advance	710	1.57	1,115				
Wm. Sandusky, Catlin	Shorthorn	Vermilion	1,367	1.71	2,350	8 05	13.76		1 80
Wm. Sandusky, Catlin	"	Abe Renic	1,005	1.91	1,925	7 80	14.89		1 55
Wm. Sandusky, Catlin	Grade Shorthorn	Richards	979	1.97	1,932	6 50	12.80		25

*The price for choice exporting cattle for week of the Show was not over $6.25 per 100 gross.

CLASS E—FAT POULTRY.

Table giving number of entries of Fat Poultry exhibited at the 1878, 1879 and 1880 Fat Stock Shows:

Poultry.	Turkey Cock	Turkey Hen	Gander	Goose	Cock	Hen	Capon	Drake	Duck	Display Poultry	Wild Game	Total
Entries, 1878	.....	.....	.....	.....	1	.....	1	1	1	.....	1	5
Entries, 1879	1	1	1	1	2	2	.....	2	2	2	.....	14
Entries, 1880	4	3	3	2	8	11	.....	2	2	4	.....	39

CLASS G—DAIRY PRODUCTS.

Table giving number of entries of Dairy Products exhibited at the 1879 Fat Stock Show:

Dairy.	Factory cheese	Farm Dairy cheese	Sweepstakes cheese	Creamery butter	Dairy butter	Sweepstakes butter	Grand Sweepstakes	Total.
Entries, 1879	15	.....	7	18	11	19	.....	74

WINTER MEETING, 1881.

DEPARTMENT OF AGRICULTURE,
SPRINGFIELD, Tuesday, January 4, 1881,
10 O'clock A. M.

Board met in regular annual session.

President Scott in the chair.

Present: President Scott, ex-President Gillham, Vice-Presidents Ellsworth, Reynolds, Haskell, Moore, Dysart, Snoad, Beaty, Pullen and Stookey.

Minutes of the meetings of the Board held during the week of the Fair, at Springfield, September 27 to October 2, were read and approved.

On motion of Mr. Snoad,

Minutes of the meetings of the Board held during the week of the Fat Stock Show, at Chicago, November 15–20, were read and approved.

On motion of Mr. Stookey,

The following reports were received and adopted:

REPORT OF COMMITTEE OF ARRANGEMENTS ILLINOIS STATE FAIR.

To the State Board of Agriculture:

The Committee of Arrangements for the Fair would beg leave to report that they have had but one meeting during the past year, and submit herewith the proceedings of the same, as a report of the committee.

Respectfully submitted,

JAS. R. SCOTT,
D. B. GILLHAM,
JOHN P. REYNOLDS,
SAMUEL DYSART,
D. E. BEATY,
EMORY COBB,
W. M. SMITH,
GEO. S. HASKELL,
D. W. VITTUM, JR.,
M. T. STOOKEY,
S. D. FISHER.

MINUTES OF THE COMMITTEE OF ARRANGEMENTS.

SPRINGFIELD, ILLINOIS, July 28, 1880.

Committee of Arrangements met on Fair Grounds, as per appointment of Chairman Scott.

Present: Messrs. Scott, Gillham, Smith, Stookey, Vittum, Beaty, Haskell and Fisher.

Mr. Emery being present, was invited to take part in the proceedings.

The committee, after inspecting the grounds and buildings and noting the additional improvements and repairs required for the accommodation of the forthcoming State Fair, adjourned, to meet at the rooms of the department at 2 o'clock P. M.

TWO O'CLOCK P. M.

Committee met, as per adjournment.

Chairman Scott presiding.

Motion Mr. Gillham carried,

That the General Superintendent and Secretary prepare and present to the local committee, without delay, a list of the improvements needed for the Fair of 1880, and named in the specifications of requirements, that have not been provided by the local committee (see report following).

Motion Mr. Smith carried,

That the members of the local committee and officers of the Sangamon County Agricultural Board be invited to meet with the Committee of Arrangements.

President Geo. Pickrell, Secretary Dwight Brown, of the county board, and J. E. K. Herrick, of the local committee, accepted the invitation.

Mr. Herrick stated that the local committee proposed to complete all necessary arrangements, as specified in the requirements.

Motion Mr. Vittum carried,

That the committee adjourn, subject to the call of the chairman.

REPORT OF COMMITTEE.

ILLINOIS STATE BOARD OF AGRICULTURE,
SPRINGFIELD, September 27, 1880.

Hon. J. H. Schuck, President Citizens' Committee, etc., Springfield, Illinois:

DEAR SIR—The undersigned would beg leave to respectfully invite your attention to the specifications of requirements for the State Fairs of 1879 and 1880, which your committee were obligated to complete and have ready for occupancy by or before the first day of September, 1879, which were short in several particulars, and which will be required for the year of 1880.

The full number of stalls for horses and cattle, as called for in specifications 2 and 3, are needed.

The shafting and power, as named in the specifications, have not been provided.

The requisite number of privies, as per specification 19, are not all provided, nor are those on the grounds in condition for use.

The water facilities, as per specification 21, are not completed.

The near approach of the time for opening the State Fair, suggests the importance of calling your attention to the condition of the grounds generally.

Some of the stalls and pens are filled with straw and manure, and should be cleaned; the buildings, stalls, pens and fences whitewashed, and the grounds put in order before the opening of the State Fair.

Respectfully submitted.

M. T. STOOKEY, General Superintendent.
S. D. FISHER, Secretary.

REPORT OF COMMITTEE OF ARRANGEMENTS FOR THE FAT STOCK SHOW.

To the State Board of Agriculture:

The undersigned were appointed a committee at the meeting of the Board held during the Fair, to complete arrangements for the Fat Stock Show.

Contract was made with Charles Brown, of Chicago, to construct the stalls and pens at the following rates:

132 cattle stalls, 6 x 8, @ $1.75	$231 00
127 sheep and hog pens, 8 x 8, @ $1.00	127 00
Other work, as per bill on file	170 50
Total	$528 50

The contractor includes in the above the expense of removing and replacing the stands, platforms, etc., occupying the north end of the Exposition Building, and the loss in cutting up of lumber.

JAS. R. SCOTT,
SAMUEL DYSART,
JOHN LANDRIGAN,
J. L. MOORE,
D. W. VITTUM, JR.
WM. VOORHIES, JR.
Committee.

REPORT OF RECEPTION COMMITTEE.

To the State Board of Agriculture:

Your committee would report that the guests of the Board were shown every attention during the week of the State Fair.

The attendance of members from other State Boards of Agriculture added much to the pleasant duties of the committee, and the interchange of views and better acquaintance made can but improve the reciprocal relations, much to the advantage of this Board.

Among the most welcome guests entertained by the Board, might be mentioned an unusually large number of the former members of the State Agricultural Society and Board of Agriculture, all of whom evinced the "old time" interest and satisfaction in the development and continued prosperity of the Illinois State Fair.

It is recommended that special efforts be made in the future to induce the old members of the State Agricultural Society and Board of Agriculture to honor the State Fair with their presence to the end that their experience and observation may be utilized in promoting the general work of the Board.

It is suggested that a special badge, suitably inscribed be provided for ex-members attending the State Fair.

Respectfully submitted.

JAS. R. SCOTT,
D. B. GILLHAM,
JOHN P. REYNOLDS,
W. M. SMITH,
EMORY COBB.
Committee.

REPORT OF PRINTING COMMITTEE.

Illinois State Board of Agriculture:

The total expenses of the Board for printing the past year are as follows:

SPRINGFIELD JOURNAL COMPANY.

December crop blanks	$14 00
July crop blanks	12 00
Stationery	4 25
May crop blanks	14 00
Printing and stationery	11 00
June crop blanks	13 00
Electrotype in premium list	10 00
Roster cards, etc	14 75
Circulars to assessors, etc.	20 50
Printing	3 60
Printing	6 00
Prin ing	6 00
Entry cards, complimentaries, etc	27 50
Printing, blanks, etc	5 40
Entry books and cards, tickets, etc.	94 50
Blanks and labels	13 25
Printing and stationery	7 75
Dodgers and blanks	7 75
Printing	3 00
August crop blanks	13 00
Total	$301 25

SPRINGFIELD REGIST R COMPANY.

June crop report, 3,000 copies	$88 00
500 copies by-laws	10 00
May crop report, 3,000 copies	71 40
Fat Stock Show report, 2,000 copies	283 17
Printing and stationery	8 00
Printing and stationery	27 25
Bl nks	65
August crop report, 3,000 copies	271 65
July crop report, 3,000 copies	60 85
Printing statistics, cost of production	15 00
Total	$835 97

T. W. S. KIDD, SPRINGFIELD.

December, 1879, crop report, 3,000 copies	$229 95

SPRINGFIELD PRINTING COMPANY.

400 applications of county boards for State appropriation	$6 00
Check books, permit cards	7 25
Printing and stationery	54 15
Certificates of Vice-Presidents	12 50
Total	$79 90

H. W. ROKKER, SPRINGFIELD.

Printing and stationery	$5 15
Stationery	4 00
1,000 blank applications	9 50
Fat Stock premium list	18 00
2 reams letter heads	9 00
Printing and stationery	64 50
Printing and stationery	11 10
Total	$121 25

JOHN B. JEFFERY, CHICAGO.

Posters	$434 00
Posters	345 47
Total	$779 47

J. B. BROWN, SPRINGFIELD.

Stationery	$11 65
Stationery	16 95
Stationery	23 25
Stationery	12 48
Stationery	10 70
Total	$75 03

JAMESON & MORSE, CHICAGO.

Tickets	$60 25
Tickets	95 90
Total	$156 15

J. M. W. JONES' STATIONERY AND PRINTING COMPANY, CHICAGO.

Stationery	$4 55

ILLINOIS PRINTING COMPANY, DANVILLE.

Agricultural statistical blanks	$13 00

JONES & COMPANY, CHICAGO.

Posters	$12 00

Stationery and sundries	162 73
Total	$174 73
Grand total	$2,771 25

An examination of the printing vouchers demonstrates the fact that the work has been performed as economically as could be expected considering the unfavorable circumstances under which the department has been compelled to have its work done at the various job office in the city making the lowest bid.

Under the State contract, the printing and stationery required by the department would cost the State much less than under the present system, and insure more uniform work without unnecessary delay and inconvenience.

It is recommended that the committee on appropriations make application for sufficient funds to cover all the expenses of printing for the board and department for the years 1881 and 1882, and have the same included in the act to provide for the ordinary and contingent expenses of the State government.

Respectfully submitted.

JAS. R. SCOTT.
J. L. MOORE.
JOHN P. REYNOLDS.
S. D. FISHER.

REPORT OF COMMITTEE ON MUSEUM.

To the Illinois State Board of Agriculture:

The Committee on Museum respectfully report that during the past year several important additions have been made to the collection, notably that in the department of Ornithology, purchased from Dr. J. W. Velie, of Chicago.

A complete catalogue of all objects placed in the Museum during the year is herewith presented.

The committee desire to say, further, that the room devoted to the Museum is entirely inadequate; and they respectfully recommend that a committee of three be appointed to confer with the proper State authorities, and to secure further room, convenient for the purposes of the Museum.

Your committee are pleased to recognize the intelligent services ot the Curator, Miss Bradford, to whom is due the present admirable arrangement and condition of the collection.

Respectfully submitted.

JAS. R. SCOTT,
JOHN P. REYNOLDS,
S. D. FISHER,
Committee.

LIST OF ADDITIONS TO AGRICULTURAL MUSEUM DURING THE YEAR 1880.

NOTE.—The following abbreviations are used for authors' names: All., Allen; Aud. Autubon; Bd., Baird; Bodd., Boddaert; Bp., Bonaparte, Cab., Cabanis; Cass., Cassin; Cs., Coues; Gamb., Gambel; Gm., Gmelin; Gr., Gr·y; L., Lin æus; Lafr., Lafresnaye; Lath., Latham: Lawr., Lawrence; Licht., Lichtenstein; Nutt., Nuttall; Reich., Reichenbach; Ridg., Ridgway: Sel., Selater; Steph., Stephens; Sw., Swainson: Temm., Temminck; Towns., Townsend; V., Vieillot; Vig., Vigors; Wagl., Wagler; Wils., Wilson.

No.	Name.	Taxidermist.	Locality.
448	Turdus Mustelinus. Gm. Wood Thrush	J. W. Velie	Chicago
449, 450	Turdus Pallasi. Cab. Hermit Thrush	"	"
451	Turdus Swainsoni. Cab. Olive-backed Thrush	"	"
452	Harporhynchus Rufus. L. Cab. Brown Thrush. Thrasher	"	"
453	Sialia Sialis. L. Haldeman. Eastern Blue-bird	"	"
454, 455	Regulus Calendula. L. Licht. Ruby-crowned Kinglet	"	"
456	Regulus Satrapa. Licht. Golden-crested Kinglet	"	"
457, 458	Polioptila Cærulea. L. Scl. Blue-Gray Gnat-catcher	"	"
459, 460	Sitta Carolinensis. Gm. White-bellied Nuthatch	"	"
461, 462	Sitta Canadensis. L. Red-bellied Nuthatch	"	"
463	Certhia Familiaris. L. Brown Creeper	"	"
464	Troglodytes Aedon. V. House Wren	"	"
465	Anorthura Troglodytes. L. Cs. Winter Wren	"	"
466	Cistothorus Stellaris. Licht. Cab. Short-billed Marsh Wren	"	"
467, 468	Eremophila Alpestris. Forst. Boie. Horned Lark; Shore Lark	"	"
469, 470	Anthus Ludovicianus. Gm. Licht. Brown Lark; Titlark; Pipit	"	"
471, 472	Mniotilta Varia. L. V. Black-and-White Creeper	"	"
473	Parula Americana. L. Bp. Blue Yellow-backed Warbler	"	"
474	Protonotaria Citræa. Bodd. Bd. Prothonotary Warbler	"	"
475	Helminthophaga Ruficapilla. Wils. Bd. Nashville Warbler	"	"
476	Helminthophaga Celata. Say. Bd. Orange-croweed Warbler	"	"
477	Dendrœca Æstiva. Gm. Bd. Summer Warbler	"	"
478	Dendrœca Virens. Gm. Bd. Black-throated Green Warbler	"	"
479	Dendrœca Coronata. L. Gr. Yellow-rumped Warbler; Myrtle Bird	"	"
480	Dendrœca Blackburniæ. Gm. Bd. Blackburnian Warbler	"	"
481	Dendrœca Striata. Forst. Bd. Black-poll Warbler	"	"
482, 483	Dendrœca Castanea. Wils. Bd. Bay-breasted Warbler	"	"
484, 485	Dendrœca Maculosa. Gm. Bd. Black-and-Yellow Warbler	"	"
486	Dendrœca Tigrina. Gm. Bd. Cape May Warbler	"	"
487, 488	Dendrœca Palmarum. Gm. Bd. Yellow Red-poll Warbler	"	"
489	Seiurus Aurocapillus. L. Sw. Golden-crowned Thrush	"	"
490	Seiurus Noveboracensis. Gm. Nutt. Water Wagtail; Water Thrush	"	"
491	Geothlypis Trichas. L. Cab. Maryland yellow-throat	"	"
492	Myiodioctes Pusillus. Wils. Bp. Green Black-capped Flycatching Warbler	"	"
493, 494	Myiodioctes Canadensis L. Aud. Canadian Flycatching Warbler	"	"
495	Setophaga Ruticilla. L. Sw. Redstart	"	"
496	Pyranga Pubra. L. Sund. Scarlet Tanager	"	"
497	Hirundo Horreorum. Barton. Barn Swallow	"	"
498, 499	Tachycineta Bicolor. V. Cs. White-bellied Swallow	"	"
500	Petrochelidon Lunifrons. Say. Cab. Cliff Swallow; Eave Swallow	"	"
501, 502	Progne Purpurea. L. Boie. Purple Martin	"	"
503, 504	Ampelis Garrulus. L. Bohemian Waxwing	"	"
505	Vireo Olivaceus. L V. Red-eyed Vireo	"	"
506	Vireo Solitarius. Wils. V. Blue-headed Vireo; Solitary Vireo	"	"
507, 508	Collurio Borealis. V. Bd. Great Northern Shrike; Butcherbird	"	"
509–511	Colluria Ludovicianus. L. Bd. White-rumped Shrike	"	"
512, 513	Loxia Curvirostra. L. Common Cross-bill	"	"
514, 515	Chrysomitris Pinus. Wils. Bp. Pine Linnet	"	"
516	Plectrophanes Nivalis. L. Meyer. Snow Bunting	"	"
517	Plectrophanes Lapponicus. L. Selby. Lapland Longspur	"	"
518, 519	Passerculus Savanna. Wils. Bp. Savanna Sparrow	"	"
520	Pooecetes Gramineus. Gm. Bd. Bay-winged Bunting; Grass Finch	"	"
521	Ammodromus Candacutus. Gm. Sw. Sharp-tailed Finch	"	"

Additions to Museum—Continued.

No.	Name.	Taxidermist.	Locality.
522	Melospiza Lincolni. Aud. Bd. Lincoln's Finch	J. W. Velie	Chicago
523, 524	Melospiza Palustris. Wils. Bd. Swamp Sparrow	..	..
525, 526	Melospiza Melodia. Wils. Bd. Song Sparrow	..	..
527, 528	Junco Hyemalis. L. Sel. Snowbird	..	..
529, 530	Spizella Socialis. Wils. Bp. Chipping Sparrow	..	..
531	Spizella Pusilla. Wils. Bp. Field Sparrow	..	..
532	Zonotrichia Albicollis Gm. Bp. White-throated Sparrow	..	..
533, 534	Zonotrichia Leneophrys. Forst. Sw. White-crowned Sparrow	..	..
535, 536	Euspiza Americana. Gm. Bp. Black-throated Bunting	..	..
537	Goniaphea Ludoviciana. L. Bowdich. Black-breasted Grosbeak	..	..
538	Cyanospiza Cyanea. L. Bd. Indigo Bird	..	..
539, 540	Pipilo Erythrophthalmus. L. V. Towhee Bunting; Chewink	..	..
541	Molothrus Ater. Gm. Gr. Cowbird	..	..
542, 543	Agelæus Phœnicius. L. V. Red-winged Blackbird	..	..
544, 545	Xanthocephalus Icterocephalus. Bp. Bd. Yellow-headed Blackbird	..	..
546, 547	Sturnella Magna. L. Sw. Field Lark; Meadow Lark	..	..
548	Icterus Spurius. L. Bp. Orchard Oriole	..	..
549	Icterus Baltimore. L. Dandin. Baltimore Oriole	..	..
550, 551	Scolecophagus Ferrugineus. Gm. Sw. Rusty Grackle.	..	..
552	Quiscalus Purpureus. Bartr. Licht. Purple Grackle; Crow Blackbird	..	..
553	Corvus Corax. Linn. Raven	..	..
554, 555	Cyanurus Cristatus. L. Sw. Blue Jay	..	..
556	Tyrannus Carolinensis. L. Bd. Kingbird; Bee Martin.	..	..
557, 558	Myiarchus Crinitus. L. Cab. Great-crested Fly-catcher	..	..
559, 560	Contopus Virens. L. Cab. Wood Pewee	..	..
561, 562	Empidonax Acadicus. Gm. Bd. Acadian Flycatcher	..	..
563, 564	Antrostomus Vociferus. Wils. Bp. Whippoorwill; Night-jar	..	..
565	Chordeiles Virginianus. Briss. Bp. Western Night-hawk	..	..
565½-66	Ceryle Alcyon. L. Boie. Belted Kingfisher	..	..
567, 568	Coccyzus Erythrophthalmus. Wils. Bd. Black-billed Cuckoo	..	..
569	Campephilus Principalis. L. Gr. Ivory-billed Woodpecker	..	..
570, 571	Hylotomus Pileatus. L. Bd. Pileated Woodpecker; Logcock	..	..
572	Picus Pubescens. L. Downy Woodpecker	..	..
573	Sphyrapicus Varius. L. Bd. Yellow-bellied Woodpecker	..	..
574, 575	Centurus Carolinus. L. Bp. Red-bellied Woodpecker.	..	..
576-578	Melanerpes Erythrocephalus. L. Sw. Red-headed Woodpecker	..	..
579, 580	Colaptes Auratus. L. Sw. Golden-winged Woodpecker; Flicker	..	..
581	Conurus Carolinensis. L. Kuhl. Carolina Parroquet	..	..
582	Bubo Virginianus. Gm. Bp. Great Horned Owl	..	..
583-585	Scops Asio. L. Bp. Screech Owl; Mottled Owl	..	..
586, 587	Brachyotus Palustris. Auct. Short-eared Owl	..	..
588	Syrnium Nebulosum. Forst. Gr. Barred Owl	..	..
589	Nictia Nivea. Daud. Gr. Snowy Owl	..	..
530, 591	Nyctale Acadica. Gm. Bp. Acadian Owl; Saw-whet Owl	..	..
592, 593	Circus Cyaneus. L. Lacep. Marsh Hawk; Harrier	..	..
594-596	Accipiter Fuscus. Gm. Bp. Sharp-shinned Hawk; Pigeon Hawk	..	..
597	Aster Atricapillus. Wils. Bp. Goshawk	..	..
598	Falco Columbarius. L. Pigeon Hawk	..	..
599-601	Falco Sparverius. L. Sparrow Hawk	..	..
602	Buteo Borealis. Gm. V. Red-tailed Buzzard; Hen Hawk	..	..
603	Buteo Lineatus. Gm. Jard. Red-shouldered Buzzard.	..	..
604	Buteo Pennsylvanicus. Wils. Bp. Broad-winged Buzzard	..	..
605, 606	Archibuteo Lagopus. Brum. Gr. Rough-legged Buzzard	..	..
607, 608	Aquila Chrysætus. L. Golden Eagle	..	..
609	Haliaetus Leucocephalus. L. Savigny. White-headed Eagle; Bald Eagle	..	..
610	Ectopistes Migratorius. L. Sw. Wild Pigeon	..	..
611-614	Meleagris Gallopavo. L. Common Wild Turkey	..	..
615-617	Tetrao Canadensis. L. Canada Grouse; Spruce Partridge	..	..

Additions to Museum—Continued.

No.	Name.	Taxidermist.	Locality.
618, 619	Centrocercus Urophasianus. Bp. Sw. Sage Cock; Cock-of-the-Plains	J. W. Velie	Chicago
620, 621	Pediœcetes Phasianellus. L. Ell. Northern Sharp-tailed Grouse	"	"
622, 623	Pediœcetes Phasianellus. L. Ell. Common Sharp-tailed Grouse	"	"
624-626	Cupidonia Cupido. L. Bd. Pinnated Grouse; Prairie Hen	"	"
627-630	Bonasa Umbellus. L. Steph. Ruffed Grouse; Partridge; Pheasant	"	"
631-633	Ortyx Virginiannus. L. Bp. Virginia Partridge; Quail; Bob-white	"	"
634, 635	Squatarola Helvetica. L. Cuv. Black-bellied Plover	"	"
636, 637	Charadrius Fulvus. Gm. Golden Plover	"	"
638	Ægialitis Vociferus. L. Cass. Kildeer Plover	"	"
639-641	Ægialitis Semipalmatus. Bp. Cab. Semipalmated Plover; Ringneck	"	"
642-644	Ægialitis Melodus. Ord. Cab. Piping Plover; Ringneck	"	"
645, 646	Strepsilas Interpres. L. Ill. Turnstone	"	"
647	Recurvirostra Americana. Gm. Avocet	"	"
648-651	Steganopus Wilsoni. Sab. Cs. Wilsons Phalarope	"	"
652	Lobipes Hyperboreus. L. Cuv. Northern Phalarope	"	"
653	Philohela Minor. Gm. Gr. American Woodcock	"	"
654	Gallinago Wilsoni. Temm. Bp. American Snipe; Wilson's Snipe	"	"
655-656	Macrohamphus Griseus. Gm. Leach. Long-billed Snipe	"	"
656, 658	Ereunetes Pusillus. L. Cass. Semipalmated Sandpiper	"	"
659	Tringa Bairdii. Coues. Baird's Sandpiper	"	"
660, 661	Tringa Maculata. V. Pectoral Sandpiper	"	"
662	Tringa Maritima. Brunnick. Purple Sandpiper	"	"
663	Tringa Canutus. L. Red-breasted Sandpiper; Knot	"	"
664-666	Calidris Arenaria. L. Ill. Sanderling; Ruddy Plover	"	"
667	Limosa Fedoa. L. Ord. Great Marbled God-wit	"	"
668, 669	Limosa Hudsonica. Lath. Sw. Hudsonian Godwit	"	"
670	Totanus Semipalmatus. Gm. Semipalmatus Tattler;	"	"
671	Totanus Melanoleucus. Gm. Greater Tell-tale	"	"
672	Totanus Flavipes. Gm. Yellow Shanks	"	"
673, 674	Totanus Solitarius. Wils. Solitary Tattler	"	"
675	Actiturus Bartraminus. Wils. Bp. Bartramian Sandpiper; Upland Plover	"	"
676-678	Numenius Longirostris. Wils. Long-billed Curlew	"	"
679, 680	Numenius Borealis. Forst. Lath. Esquimaux Curlew	"	"
681-684	Tringa Alpina. L. American Dunlin	"	"
685	Ibis Falcinellus. Auct. Glossy Ibis	"	"
686	Ardea Herodias. L. Great Blue Heron	"	"
687	Botaurus Minor. Gm. Bittern; Indian Hen	"	"
688	Grus Americanus. L. Ord. White Crane; Whooping Crane	"	"
689-691	Grus Canadensis. L. Temm. Brown Crane; Sandhill Crane	"	"
692, 693	Rallus Elegans. Aud. Fresh-water Marsh Hen	"	"
694	Rallus Virginianus. L. Virginia Rail	"	"
695, 696	Porzana Carolina. L. V. Carolina Rail; Sora; Ortolan.	"	"
697	Porzana Noveboracensis. Gm. Cass. Yellow Rail	"	"
698-700	Gallinula Galeata. Licht. Bp. Florida Gallinule	"	"
701	Cygnus Buccinator. Richardson. Trumpeter Swan	"	"
702	Cygnus Americanus. Sharpless. Whistling Swan	"	"
703	Cygnus Olor. L. Mute Swan; Tame Swan	"	"
704	Chenopsis Atrata. L. Black Swan	"	"
705, 706	Anser Albifrons. Gm. American White-fronted Goose	"	"
707, 711	Anser Cærulescens. L. Blue Goose	"	"
712	Anser Hyperboreus. Pall. Snow Goose	"	"
713-715	Anser Hyperboreus. Pall. Lesser Snow Goose	"	"
716	Branta Canadensis. L. Canada Goose; Wild Goose	"	"
717	Branta Canadensis. L. White-Collared Goose	"	"
718, 719	Branta Canadensis. L. Hutchins' Goose	"	"
720, 721	Anas Boschas. L. Mallard	"	"
722, 723	Anas Obscura. Gm. Dusky Duck	"	"
724-728	Dafila Acuta. L. Jenyns. Pintail; Sprigtail	"	"
729, 730	Chaulelasmus Streperus. L. Gray. Gadwall; Gray Duck	"	"
731-733	Marecа Americana. Gm. Steph. American Widgeon; Baldpate	"	"
734, 735	Querquedula Carolinensis. Gm. Green-winged Teal	"	"
736-738	Querquedula Discors. L. Steph. Blue-winged Teal	"	"
739	Querquedula Cyanoptera. V. Cass. Cinnamon Teal	"	"
740-742	Spatula Clypeata. L. Boie. Shoveller	"	"
743, 744	Aix Sponsa. L. Boie. Summer Duck; Wood Duck	"	"

Additions to Museum—Continued.

No.	Name.	Taxidermist.	Locality.
745-747	Fuligula Marila. L. Steph. Greater Blackhead	J. W. Velie	Chicago
748, 749	Fuligula Affinis. Eyton. Lesser Blackhead	"	"
750, 751	Fuligula Collaris. Donovan. Bp. Ring-necked Duck	"	"
752, 753	Fuligula Ferina. L. Sw. Redhead; Pochard	"	"
754, 755	Fuligula Vallisneria. Wils. Steph. Canvas-back	"	"
756-758	Bucephala Clangula. L. Gr. Golden-eyed Duck	"	"
759-761	Bucephala Albeola. L. Bd. Buffle-headed Duck	"	"
762, 763	Harelda Glacialis. L. Leach. Long-tailed Duck	"	"
764	Œdemia Americana. Sw. American Black Scoter	"	"
765	Œdemia Perspicillata. L. Fleming Surf Duck	"	"
766-768	Erismatura Rubida. Wils. Bd. Ruddy Duck	"	"
769, 770	Mergus Merganser. L. Merganser; Goosander	"	"
771	Mergus Serrator. L. Red-breasted Merganser	"	"
772, 773	Mergus Cucullatus. L. Hooded Merganser	"	"
774	Hybrid	"	"
775	Larus Argentatus. Brunn. Herring Gull; Common Gull	"	"
776	Larus Argentatus. Brunn. Western Herring Gull	"	"
777, 778	Larus Delawarensis. Ord. Ring-billed Gull	"	"
779, 780	Larus Philadelphia. Ord. Coues. Bonaparte's Gull	"	"
781, 782	Sterna Hirundo. L. Common Tern; Sea Swallow	"	"
783, 784	Sterna Forsteri. Nutt. Forsters Tern	"	"
785	Sterna Superciliaris. V. Least Tern	"	"
786, 788	Hydrochelidon Fissipes. L. Gray. Black Tern	"	"
789	Colymbus Torquatus. Brunn. Loon; Great Northern Diver	"	"
790	Colymbus Septentrionalis. L. Red-throated Diver	"	"
791	Podiceps Cornutus. Gm. Lath. Horned Grebe	"	"
792	Podiceps Auritus. L. Lath. American Eared Grebe	"	"
793, 794	Podilymbus Podiceps. L. Lawr. Pied-billed Dabchick	"	"
795	Pelecanus Trachyrhynchus. Lath. White Pelican	"	"
797	Sphyrapicus Varius. L. Bd. Yellow-bellied Woodpecker	"	"
798	Putorius Noveboracensis. De Kay. Ill. White Weasel; Ermine	"	"
799	Vulpes Fulvus. Baird. Ill. Red Fox	"	"
800	Vulpes Virginianus. Rich. Ill. Gray Fox	"	"
801	Ursus Americana. Pallas. Black Bear	"	"
802	Didelphys Virginiana. Shaw. Ill. Opossum	"	"
803-805	Sciurus Ludovicianus. Curtis. Ill. Western Fox Squirrel	"	"
807, 808	Sciurus Carolinenses. Gm. Ill. Gray Squirrel	"	"
809, 810	Spermophilus Tridecemlineatus. And. and Bach. Ill. Striped Gopher	"	"
811	Spermophilus Franklini. Rich. Ill. Gray Gopher	"	"
812	Lepus Americanus. Erxl. Wis. Northern Hare; White Rabbit	"	"
813	Lepus Sylvaticus. Bach. Ill. Gray Rabbit (Albino)	"	"
814	Lepus Callotis. Wagler. Col Jackass, or Mule Rabbit.	"	"
815	Bassaris Astuta. Licht. Texas. Civet Cat	"	"
816	Erethizon Dorsatus. Cuv. Wis. White-haired Porcupine	"	"

GRAINS, SEEDS, ETC.

No.	Variety.	Contributor.	Locality.
817	Turkey Wheat, No. 2, 36 bu. per A	W. H. McMurphy	Burtonview
818	Red Spring Wheat	Dilley & Co	Macomb
819	Red Spring Wheat	Wm. Schenck	Maroa
820	Fultz Wheat	Geo. Cline	Anna
821	Red Winter Wheat	Mrs. E. Furrow	Rochester
822	Tappahannock Wheat	A. Earnhart	Anna
823	Clawson Wheat	Edwin Watts	Farmingdale
824	Rye	L. McMurray	Farmingdale
825	Rye	Wm. Schenck	Maroa
826	Spring Barley	Wm. Schenck	Maroa
827	Oats	John Wilcox	Rockford
828	Oats	Dilley & Co	Macomb
829	Oats	Geo. Schamel	Springfield
830	Oats	Felix Carver	Springfield
831	Blue Grass	John T. Epler	Pleasant Plains
832	Timothy	A. B. Watts	Farmingdale
833	Timothy	Wm. Schenck	Maroa
834	Clover	A. B. Watts	Farmingdale
835	Fultz Wheat	John Defrees	Greenville
836	Mediterranean Wheat	John Defrees	Greenville

WAX CASTS OF FRUIT.

No.	Variety.	Artist.	Donor of Fruit for Model.
	Apples.		
837	Jonathan	Mrs. M. M. Greenland, Des Moines, Iowa.	J. B. Spaulding, Riverton
838	Grimes' Golden	Mrs. M. M. Greenland,	J. B. Spaulding,
839	Westfield Seek-no-further	"	"
840	Wythe	"	"
841	Early Strawberry	"	"
842	Fall Pippin	"	"
843	Maiden Blush	"	"
844	Willow Twig	"	"
845	Bailey's Sweet	"	"
846	Wine Sap	"	"
847	Seedling	"	"
848	White Pippin	"	"
849	Jannetting (Rowles' Jannet)	"	"
850	Yellow Newton Pippin	"	"
851	Golden Sweet	"	"
852	Duchess of Oldenburg	"	"
853	Keswick Codling	"	"
854	Benoni	"	"
855	Sweet June	"	"
856	Carolina June	"	"
857	Sweet Bough	"	"
858	Red Astracan	"	"
859	Early Harvest	"	"
	Pears.		
860	Flemish Beauty	"	"
861	Clapp's Favorite	"	"
862	Buerre Clairgeau	"	"

MISCELLANEOUS.

No.	Article.	Contributor.	Locality.
863	Miniature House (Sangamon river shells)	Miss Kate Wetterer	Springfield
864	Agricultural Wreath	Miss Lou J. Bell	Berry
865	Indian Ax	Dr. J. Hartner	Springfield

ACKNOWLEDGMENTS.

Samples have been received of grains, etc., in the straw, as follows:

Varieties of Wheat—Bald, California Blue Stem, Minnesota Fife, Capt. Buckley, McHenry county; Lost Nation, Defiance, Randal Bros., McHenry county; Australian, R. Wray, McHenry county; White Winter, J. Green, McHenry county; Red Winter, Col. Palmer, McHenry county; Clawson, J. Overton, McHenry county, J. Classattle, McHenry county, John Williams, Athens; Spring, C. Irwin, McHenry county; Canada Club, W. Hunter, McHenry county; Wisconsin Spring, E. Buck; McHenry county; White Russian, J. Low, McHenry county; Todd, O. B. Nichols, Carlyle; Mediterranean, Fultz, John Defrees, Greenville; Zimmerman, Genesee, J. F. Fulton, Petersburg; May, A. M. Ebersol, Ottawa.

Varieties of Oats—Winter, Harry Jones, Carlyle; Hulless, Capt. Buckley, McHenry county; Black, E. Burk, McHenry county; Common, L. St. Rose, Aviston, Wm. Clabough, Carlyle.

Timothy—W. Sims, McHenry county.

Varieties of Rye—Common, A. M. Ebersol, Ottawa; Winter, C. Pendleton, McHenry county.

Flax—John Riley, McHenry county.

Buffalo Grass—J. M. Osborne, W., St. L. and P. Ry.

Upland Rice—J. D. Caton, Ottawa.

Some fine specimens of Gold, Silver and Copper Ore have been contributed by M. F. Simmons, Springfield.

Specimens of Peat, brought from the bogs of Mayo, Ireland, presented by P. Durkin, Springfield.

REPORT OF LIBRARY COMMITTEE.

To the State Board of Agriculture:

Your Committee on Library beg leave to report additions to bound books and periodicals at a cost of $381.27, a list of which is herewith submitted.

The library now contains a rare collection of standard works on industrial matters, which is almost daily consulted, as many of the books cannot be found in any public or private library.

Exchaeges of transactions have been made with the State associations of Connecticut, Indiana, Iowa, Massachusetts, Michigan, Missouri, New York, Ohio, Pennsylvania, Wisconsin, New Jersey, and several foreign associations.

The reading rooms have been supplied (complimentary) with nearly all the agricultural papers of this country, and by subscription with the principal English industrial publications.

The library still lacks several standard and current works, which are daily sought for, and we would urge that the Legislature continue the appropriation to the library fund.

H. D. EMERY,
GEO. S. HASKELL,
S. D. FISHER,
Committee.

LIST OF BOOKS.

No.	Title of Work.	Author.
1217-31	Animal Kingdom. Vols. 1, 2, 3, 4 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	Griffith
1233	Index to Awards and Claims of Exhibiters at the International Exhibition of 1876	
1234	Chemistry of Common Life	Jas. F. W. Johnston
1235	Commerce and Navigation of the U. S., 1879	
1236	Digest of Seeding Machines and Implements	Allen
1237	History of the 124th Regiment, Ill. Infantry	R. L. Howard, Ch'p'n
1238	Historie Generale et Iconographe Des Lepidopteres et Des Chenilles	
1239	Historia Naturalis de Airbus, 1790	Johan'usJohnstonus
1240	Insects Abroad	Rev. J. G. Wood
1241	Insects, Report on Cotton, 1879	J. H. Comstock
1242	Illustrated Stock Doctor and Live Stock Encyclopedia	J.R.Manning, Md. V.S
1243	Model Farms and their Methods	S. T. K. Prime
1244-50	Popular Science Monthly. Vols. 1, 2, 7, 8, 11, 12, 13	

List of Books—Continued.

No.	Title of Work.	Author.
1251	Practical Treatise on Lightning Protection	Spang
1252-59	Scientific American. Vols. 1, 2, 3, 4, 5, 6, 7, 8	
1260	Sheep Husbandry. A work prepared for the farms of Tennessee, 1880	
1261	The Vegetable World	Louis Figuier
1262	The Insect World	Louis Figuier
1263	The Trees of America	Brown
1264	The Woolen Manufacturers' and Wool Merchants' Banquet at Philadelphia	
1265	Use of Belting	Cooper
	Herd Books.	
1266	Clydesdale Stud Book	
1267	Coats' Herd Book	
1268	English Herd Book of Jersey Cattle. Vol. 1	John Thornton
1269	Herd Book of Hereford Cattle. Vol. 10	

REPORTS, ETC.

No.	Title of Work.
	Connecticut.
1270	Report Connecticut Board of Agriculture and Experiment Station, 1879
	Illinois.
1271	Transactions Horticultural Society, 1879
	Indiana.
1272	Agricultural Report, 1879
1273	First Annual Report of the Bureau of Statistics and Geology, 1879
	Iowa.
1274	Agricultural Report, 1879
	Kentucky.
1275	Agricultural Report, 1880
	Massachusetts.
1276	Agricultural Report, 1879, 1880
	Michigan.
1277	Michigan Pomological Society, 1879
	Missouri.
1278	Agricultural Report, 1879
	New York.
1279	20th Annual Report of State Cabinet of Natural History, 1867
1280	21st " " the Regents of State University, 1868
1281	22d " " " " " " 1869
1282	23d " " State Museum, 1870
1283	25th " " " " 1872
1284	26th " " " " 1873
1285	27th " " " " 1874

Reports, Etc.—Continued.

No.	Title of Work.
	New York.
1286	28th Annual Report State Museum, 1875
1287	29th " " " " 1876
1288	30th " " " " 1877
1289	31st " " " " 1878
1290	Annual Report New York Produce Exchange, 1879
	New Jersey.
1291	1st Annual Report Bureau of Statistics, Labor and Industries, 1878
1292	2d " " " " " " 1879
	Ohio.
1293	Agricultural Report, 1879
	Pennsylvania.
1294	Agricultural Report, 1879
	Wisconsin.
1295	Transactions State Agricultural Society, 1879 and 1880
1296	8th Annual Report of Wisconsin Dairymen's Association, 1880
	Miscellaneous.
1297	Annual Report of the Commissioner of Agriculture and Arts, Province of Ontario, 1879
1298 to 1301	Annals De la Societe Entomologique De Belgique, 1875, 1876, 1877, 1878
1302-7	Bulletin of Wool Manufacturers. Vols. 5, 6, 7, 8, 9, 10
1308	Report of Scientific and Practical Facts in the Production of Grain, Beef and Mutton
1309	Statistics of the Colony of Tasmania, 1879
1310-16	Transactions American Entomological Society. Vols. 1, 2, 3, 4, 5, 6, 7

The following is the list of Periodicals received at the office during the year:

Name of Paper.	Location.	Publisher.
Prairie Farmer	Chicago	Prairie Farmer Co.
Western Rural	Chicago	Milton George
Country Gentlemen	Albany, N. Y	Luther Tucker & Son
Pantagraph	Bloomington	W. O. Davis
Gazette	Jonesboro	T. F. Bouton
National Live Stock Journal	Chicago	Stock Journal Co
Turf, Field and Farm	New York City	Turf, Field and Farm Ass'n
Coleman's Rural World	St. Louis, Mo	N. J. Coleman
Home and Farm	Louisville, Ky	B. F. Avery & Son
Argus	Atlanta	Geo. L. Shoals
Journal of Agr. and Farmer	St. Louis, Mo	Phil. Chew
Kentucky Live Stock Record	Lexington, Ky	B. J. Bruce
Journal	Albion	Morris Emmerson
The World	New York City	The World Co
Farmer's Review	Chicago	Farmer's Review Co
United States Miller	Milwaukee, Wis	E. H. Cawker
Gazette	Mt. Carroll	F. H. B. McDowell
Observer	Carbondale	A. Ackerman
Daily State Journal	Springfield	Journal Co
Daily State Register	"	Register Co
Daily Monitor	"	T. W. S. Kidd
Daily Post	"	Co-Operative Company

List of Periodicals Received—Continued.

Name of Paper.	Location.	Publisher.
Indiana Farmer	Indianapolis, Ind	Indiana Farmer Co
Wallace's Monthly	New York City	John H. Wallace
Farmer and Fruit Grower	Anna	H. C. Bouton
Weekly Drovers' Journal	Chicago	H. L. Goodall & Co
Cincinnati Price Current	Cincinnati, O	Charles B. Murray
American Stockman	Chicago	American Stockman Co
Engineer and Mining Journal	New York City	Scientific Publishing Co
Land and Home	New York City	Land and Home Co
Herald	Lincoln	F. B. Mills
The Leaf	Chicago	G. P. Hoffman
Legal Adviser	Chicago	Legal Adviser Co
Union	Shelbyville	H. L. Martin
Republican	Whitehall	Pearce & Clapp
Gazette	Lanark	Frank F. Livermore
Berkshire Bulletin	Springfield	American Berkshire Ass'n
Gardners' Chronicle	London, England	William Richards
Mark Lane Express	" "	Hazell, Watson & Viney
Journal of Horticulture	" "	Edward Harold May
Journal of Forestry	" "	J. & W. Rider
Journal of Botany	" "	West, Newman & Co
Entomologist	" "	John Van Voorst
Entomologist, 2nd	" "	Simpkin, Marshall & Co
Live Stock Journal	" "	Edward J. Knight
Nature	New York City	MacMillan & Co
Journal of Commerce	Chicago	Wm. Baker
The Floral World	London, England	Groombridge & Sons
The Western Trade Journal	Chicago	Fox, Cole & Co
Freeport Journal	Freeport	Journal Printing Co
Industrial World	Chicago	Commercial Advertiser Co
Agricultural Gazette	London, England	A. K. Bruce
Country Gentlemens' Magazine	" "	Wm. Blackwood & Sons
Floral Magazine	" "	L. Reek & Co
The Iowa Homestead	DesMoines, Iowa	Homestead Co
North British Agriculturist	Edinburg, Scotland	Chas. Anderson, Jr
The Garden	London, England	Thos. Spanswick
Field, Farm and Garden	" "	Horace Cox
Land and Water	" "	James Wildy

REPORT OF COMMITTEE ON TRANSPORTATION.

To the State Board of Agriculture:

The committee on transportation for the Fair and Fat Stock Show have succeeded in securing favorable excursion rates for visitors attending the State Fair.

The large number of farmers, manufacturers and others attending this State industrial exhibition duly appreciate the low rates conceded by the majority of the roads.

The encouragement offered by the railroads to exhibiters of live stock, agricultural implements and other articles, by giving half-rates, and, in some instances, free transportation both ways, doubtless largely increased the exhibition in all the departments, and contributed to the success of the Fair and Fat Stock Show.

The managers of the Railroads of the State, with scarcely an exception, appreciate the fact that the State Board of Agriculture is making every possible effort to develop the general prosperity of the industrial classes. The prosperity of all interests is in proportion to the growth and condition of Agriculture, and the transportation of produce out and other articles of necessity and luxury in return from each locality in the State, is no exception to this rule.

Your committee would recommend the adoption of the following resolutions:

Resolved, That the thanks of the Illinois State Board of Agriculture are due and hereby tendered to the railroads named below for the substantial aid rendered the agriculturists of the State, in making liberal reductions in passenger and freight rates to visitors and exhibiters attending the Illinois State Fair and Fat Stock Show for 1880.

Resolved, That the Secretary is hereby instructed to send a copy of the resolutions to the managers of the railroads who have thus coöperated with the Board in making the Fair and Fat Stock Show of benefit to the greatest number of the industrial classes of the State.

Railroads granting reduced rates appear in the paper appended.

Respectfully submitted.

JAS. R. SCOTT,
D. B. GILLHAM,
GEO. S. HASKELL,
EMORY COBB,
W. M. SMITH,
S. D. FISHEP,
Committee.

Adopted on motion of Mr. Ellsworth.

RAILROAD ARRANGEMENTS STATE FAIR, 1880.

**Chicago, Rock Island & Pacific; Toledo, Peoria & Warsaw; Chicago & Iowa; Peoria, Decatur & Evansville; Chicago, Pekin & Southwestern; Peoria, Pekin & Jacksonville; St. Louis, Alton & Terre Haute; Illinois Midland; Springfield & Northwestern; **Indiana, Bloomington & Western:*

Passengers, one and one-fifth fare for the round trip. Freight will be charged full rate to the Fair, and returned free to points whence shipped, on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

Chicago & Alton; Illinois Central:*

Passengers, one and one-half fare for the round trip. Freight will be charged full rate to the fair, and must be pre-paid, when it will be returned free to points on this road whence shipped, on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

**Chicago & Northwestern:*

Passengers one and one-half fare for the round trip. Freight charges to be paid in advance, but if the property is returned to the place of shipment without change of ownership, the amount of charges will be refunded.

**Chicago, Burlington & Quincy:*

Passengers, 2 cents per mile for the round trip, excursion tickets to junctional points. Freight, from starting point on the line to where it leaves the road, at regular tariff rates, prepaid, will be returned free to original starting point on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

**Ohio & Mississippi:*

Passengers at one and one-third rates for the round trip. Freight will be charged full rates to the fair and returned free to points whence shipped, on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

**Vandalia Line:*

Passengers half rates (4 cents per mile one way). Freight will pay full rate going and be returned free, on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

**Wabash, St. Louis & Pacific:*

Passengers 2¼ cents per mile each way for round trip. Freight must be prepaid at tariff rates at the point of shipment to the fair, and will be returned free to point whence shipped, on certificate of the secretary that the same has been on exhibition, ownership being unchanged.

‡Indianapolis & St. Louis:

Passengers one full fare for the round trip from Tower Hill, Paris, and intermediate points. Freight from any station in Illinois at full tariff rates, and returned to points of shipment free, on certificate of the secretary that the same has been on exhibition, and has not changed ownership.

As nearly all the railroads require prepayment of freight at the station whence shipped, a receipted bill should be taken for the same, which should be certified by the secretary, on the grounds, as early as Thursday of the fair.

* Arrangements to cover points in Illinois only. ‡ Via Pana.
** Arrangement covers freight only.

RAILROAD ARRANGEMENTS FOR THE CHICAGO FAT STOCK SHOW, 1880.

Michigan Central; †Lake Shore & Michigan Southern:

Will carry stock to Chicago at local rates, and refund one-half of the amount paid on presentation of secretary's certificate that the stock has been on exhibition.

Chicago & Northwestern; Chicago, Rock Island & Pacific; Illinois Central; Chicago & Alton; Chicago, Burlington & Quincy; Chicago & Iowa; Chicago, Pekin & Southwestern; Chicago & Eastern Illinois:

Will carry stock to Chicago at regular tariff rates, and refund one-third the amount paid on presentation of secretary's certificate that the stock has been on exhibition.

Paid freight bills with secretary's certificate should be presented to the railroads when applying for a rebate in freight.

These concessions are made upon condition that the roads are released from any and all liability exceeding $50 per head, in case of injury by accident or otherwise, while in transit, or while awaiting shipment or delivery at stations.

REPORT OF COMMITTEE ON SUBSCRIPTION FOR FAT STOCK SHOW.

To the State Board of Agriculture:

Your committee, appointed to solicit subscriptions for the Fat Stock Show, would beg leave to report that a meeting was held in the city of Chicago on the 26th of February, 1880. The members of the committee were appointed to visit the several classes of business men interested in the Show, and the following subscriptions were secured, aggregating $3,260.00:

Union Stock Yards and Transit Company	$1,000 00
Pork Packers' Association	625 00
Woods Bros	100 00
C. H. Horine	25 00
McCurdy and Beveridge	25 00
Gregory, Cooley & Co	50 00
Parmallee, Hannah & Scott	25 00
March, Darlington & Co	40 00
Adams & Eldridge	50 00
Geo. Adams, Burke & Bro	50 00
Wm. Young & Co	100 00
James Jackson	50 00
Shannon Bros	50 00
R. Strahorn & Co	50 00
J. Rosenbaum	25 00
Hall, Patterson & Co	50 00
R. M. Conger	25 00
Holmes & Beckett	25 00
Harley, Green & Co	40 00
Abner Pyatt	25 00
Elliott & Musgove	5 00
Bensley & Wagner	25 00
Nelson Morris	25 00
Grand Pacific Hotel	150 00
Tremont House	50 00
Gardner House	25 00
Atlantic Hotel	25 00
J. V. Farwell & Co	200 00
Field, Leiter & Co	150 00
C. M. Henderson	50 00
Keith Bros	25 00
O. R. Ke th	25 00
John Ford	25 00
Sloan Bros. & Co	25 00
L. Adams & Co	15 00
F. W. Bipper	10 00

The Board at its late meeting adopted the following resolution:

Resolved, That a committee of six, with the President as chairman, be appointed to obtain a guarantee fund of not less than the amount offered in premiums on Fat Stock, and in case said fund shall be obtained, that said committee proceed to have made the necessary preparations and arrangements for said Show.

A sum more than sufficient to cover the premiums provided for by the Board having been secured, the committee proceeded to carry out the instructions of the Board, and advertise the Show.

The Board, at a meeting held during the State Fair, appointed another committee to complete the arrangements for the Show.

Respectfully submitted.

JAS. R. SCOTT,
D. B. GILLHAM,
LEWIS ELLSWORTH,
SAMUEL DYSART,
D. W. VITTUM, JR.,
WM. VOORHEES, JR.
Committee.

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† Arrangements to apply to stock shipped in car-loads, or in lots of four animals or more; the revenue of the road in no case to be made less than $12 for 100 miles or less; $15 for distances between 100 and 200 miles, and $20 for distances between 200 and 300 miles.

REPORT OF SPECIAL COMMITTEE ON SILVER PLATE.

To the State Board of Agriculture:

The undersigned committee having in charge the silver plate purchased in 1878 for premiums at the Fat Stock Show, would beg leave to report that there are still two pieces on hand, valued at $50 each.

The plate is in the hands of the manufacturer, C. D. Peacock, of Chicago.

Your committee would renew their former recommendation that these two pieces be awarded as premiums in such manner as the Board may designate.

Respectfully submitted.

D. B. GILLHAM,
S. D. FISHER,
Committee.

REPORT OF COMMITTEE ON LOCATION OF STATE FAIR.

To the State Board of Agriculture:

Your committee to whom was referred the question of locating the Illinois State Fair at one or three points in the State, would beg leave to report that the following questions were submitted to the proper agricultural organizations or county officials in each county in the State:

1. Are you in favor of a permanent location of the State Fair?
2. Do you favor locating the State Fair at a single point in the central part of the State?
3. Do you favor locating the State Fair to be held alternately in the Northern, Central and Southern Divisions of the State?

The circular anticipated the adoption of resolutions by the societies, and a number of the agricultural organizations of the State gave expression to their views in the resolutions forming part of this report.

The committee did not consider that the Board expected an argument either pro or con, and have simply submitted all the attainable information likely to be of service to the Board when the question was discussed.

It will be noticed from the table, made a part of this report, giving the vote by counties, that counties in the central part of the State favor a single location, which they think would without doubt be within easy reach and make it convenient for their people to attend the State Fair each year. It is a well known fact that the attendance at the State Fair has been mainly from a circuit of about sixty miles.

Counties in the Northern and Southern Divisions of the State, near accessible railroad centers likely to be considered as desirable locations, indicate their preference for three points.

The majority of exhibiters desirous of reaching the largest number of new customers annually, prefer to have the State Fair held alternately in each of the three Grand Divisions of the State; while a number of regular exhibiters of machinery, desirous of erecting attractive building in which to show their goods, do not care to incur the expense of more than one building.

Sixty-nine counties have reported, from which the inclosed summary is made:

Fifty counties favor and thirteen oppose permanent location.

Forty-two counties favor and twenty-one counties oppose locating the Fair at a single point.

Fifteen counties favor and forty-five counties oppose locating the fair to be held alternately in the Northern, Central and Southern Divisions of the State.

Eleven counties in the Northern, ten in the Central and twelve in the Southern Divisions of the State failed to make report.

It will be seen by the following recapitulation what influence the geographical location of the several counties seems to have had in deciding the preferences.

The counties are grouped below according to the Supreme Court divisions:

NORTHERN DIVISION.

Eleven counties favor and ten counties oppose permanent location.

Three counties favor and sixteen counties oppose locating the Fair at a single point in the center of the State.

Ten counties favor and seven counties oppose locating the Fair to be held alternately in the Northern, Central and Southern Divisions of the State, and no report from the following counties in the Northern Division—Cook, Grundy, Henderson, Kankakee, Lake, Marshall, Mercer, Putnam, Stephenson, Warren, Woodford.

Answers by Counties.

Counties.	First Question.	Second Question.	Third Question.
Boone	Yes.	No.	No.
Bureau	Yes.		
Carroll	No.	No.	Yes.
Cook			
DeKalb	Yes.	No.	Yes.
DuPage	No.	No.	No.
Grundy			
Henderson			
Henry			Yes.
Iroquois	Yes.	Yes.	
Jo Daviess	Yes.		
Kane	No.	No.	
Kankakee			
Kendall	Yes.	Yes.	
Knox	No.	No.	No.
Lake			
LaSalle	No.	No.	Yes.
Lee	No.	No.	Yes.
Livingston	No.	No.	Yes.
Marshall			
McHenry	Yes.	No.	No.
Mercer			
Ogle	No.	No.	Yes.
Peoria	Yes.	No.	Yes.
Putnam			
Rock Island	No.	No.	No.
Stark	Yes.	Yes.	No.
Stephenson			
Warren			
Whiteside	No.	No.	Yes.
Will	Yes.	No.	No.
Winnebago	Yes.	No.	Yes.
Woodford			
Total	11 Yes. 10 No.	3 Yes. 16 No.	10 Yes. 7 No.

CENTRAL DIVISION.

Twenty-three counties favor and one county opposes permanent location.

Twenty-three counties favor and one county opposes locating the Fair at a single point in the center of the State.

One county favors and twenty-two counties oppose locating the Fair to be held alternately in the Northern, Cen ral and Southern Divisions of the State, and no reports from the following counties in the Central Division—Calhoun, DeWitt, Hancock, Logan, Mason, McDonough, Montgomery, Morgan, Scott, Shelby and Tazewell.

Answers by Counties.

Counties.	First Question.	Second Question.	Third Question.
Adams	Yes.	Yes.	No.
Brown	Yes.	Yes.	No.
Cass	Yes.	Yes.	No.
Calhoun			
Champaign	No.	No.	Yes.
Christian	Yes.	Yes.	No.
Clark	Yes.	Yes.	No.
Coles	Yes.	Yes.	No.
Cumberland	Yes.	Yes.	No.
DeWitt			
Douglas	Yes.	Yes.	No.
Edgar	Yes.	Yes.	No.
Ford	Yes.	Yes.	No.
Fulton	Yes.	Yes.	No.
Greene	Yes.	Yes.	No.
Hancock			
Jersey	Yes.	Yes.	No.
Logan			
Macon	Yes.	Yes.	No.

Answers by Counties.

Counties.	First Question.	Second Question.	Third Question.
Macoupin	Yes.	Yes.	No.
Mason			
McDonough			
McLean	Ye	Yes.	No.
Menard	Yes.	Yes.	No.
Montgomery			
Morgan			
Moultrie	Yes.	Yes.	No.
Piatt	Yes.	Yes.	No.
Pike	Yes.	Yes.	No.
Sangamon	Yes.	Yes.	No.
Schuyler	Yes.	Yes.	No.
Scott			
Shelby			
Tazewell			
Vermilion	Yes.	Yes.	
Total	23 Yes. 1 No.	23 Yes. 1 No.	1 Yes. 22 No.

SOUTHERN DIVISION.

Twenty counties favor and two counties oppose permanent location.

Sixteen counties favor and five counties oppose locating the Fair at a single point in the center of the State.

Four counties oppose and sixteen counties favor locating the Fair, to be held alternately in the Northern, Central and Southern Divisions of the State, and no reports from the following counties in the Southern Division: Bond, Edwards, Franklin, Lawrence, Marion, Pulaski, Richland, Saline, St. Clair, Washington and Wayne.

Answers by Counties.

Counties.	First Question.	Second Question.	Third Question.
Alexander	Yes.	No.	No.
Bond			
Clay	Yes.	Yes.	No.
Clinton	Yes.	Yes.	No.
Crawford	Yes.	No.	No.
Edwards			
Effingham	Yes.	No.	Yes.
Fayette	Yes.	Yes.	No.
Franklin			
Gallatin	Yes.	Yes.	No.
Hamilton	Yes.	No.	Yes.
Hardin	Yes.	Yes.	No.
Jackson	Yes.	Yes.	No.
Jasper			Yes.
Jefferson	Yes.	Yes.	No.
Johnson	Yes.	Yes.	
Lawrence			
Madison	No.		
Marion			
Massac	No.	No.	Yes.
Monroe	Yes.	Yes.	No.
Perry	Yes.	Yes.	No.
Pope	Yes.	Yes.	No.
Pulaski			
Randolph	Yes.	Yes.	No.
Richland			
Saline			
St. Clair			
Union	Yes.	Yes.	No.

Answers by C unties.

Counties.	First Question.	Second Question.	Third Question.
Wabash	Yes.	Yes.	No.
Washington			
Wayne			
White	Yes.	Yes.	No.
Williamson	Yes.	Yes.	No.
Total	20 Yes. 2 No.	16 Yes. 4 No.	4 Yes. 16 No.

Respectfully submitted.

D. B. GILLHAM,
GEO. S. HASKELL,
B. PULLEN,
Committee.

RESOLUTIONS ADOPTED BY COUNTY AGRICULTURAL BOARDS.

BOONE—*Resolved*, That it is the sense of the Boone County Agricultural Society that the State Fair should be permanently located at the most accessible and convenient point in the State, and that on account of railroad facilities, hotel accommodations, etc., the city of Chicago is that point.

BUREAU—Resolution adopted in favor of permanent location at Chicago.

CASS—*Resolved*, That the Cass County Agriculturists recommend a permanent location of the State Fair by purchase of land or lease for ninety-nine years, so that improvements made and money expended will not be in vain.

CLARK—*Resolved*, That the Board of Agriculture of Clark County are in favor of a permanent location for the State Fair, and that we unanimously favor Springfield, Sangamon county, as the place for holding it.

COLES—*Resolved*, That we believe the State Fair should be permanently located at Springfield.

DEKALB—*Resolved*, That wherever the State Fair may be located, the expense of grounds and buildings should be borne by the town which secures it.

DEWITT—*Resolved*, By the Agricultural Board of DeWitt County, that we are in favor of permanently locating the State Fair at Decatur.

DUPAGE—*Resolved*, That the State Board continue to locate the State Fair the same as in the past, viz: where they receive the best bid.

EDGAR—*Resolved*, That it is the opinion of this Board that the State Fair should be permanently located at Springfield.

FAYETTE—That we, the Fayette County Agricultural Board, after having fully discussed the questions submitted, do heartily recommend the location of the State Fair at one point in the central part of the State, and as a place would suggest Springfield, deeming it the most favorable location.

ORD—*Resolved*, That it is the sense of this Board that the State Fair should be permanently located at Peoria.

FULTON—*Resolved*, That we, the Fulton County Agricultural Board, believe that the permanent location of the Illinois State Fair at Peoria would be to the best interest of the people of the State, and would ask the careful consideration of your honorable committee as to the superior claims of the above-named point.

GALLATIN—Board were all unanimously in favor of permanently locating the State Fair at Springfield.

GREENE—*Resolved*, That we, the directors and stockholders of the Greene County Agricultural Board, believing it to be for the best interest of our State Fair, are, therefore, in favor of permanent location. Our first choice is Springfield, and second, Decatur.

HAMILTON—*Resolved*, That the State Fair should be permanently located at three places—one in the Northern, one in the Central, and one in the Southern portion of the State, and Fairs should be held thereat alternately. Suitable, convenient and accessible places should be at once selected and properly improved.

JEFFERSON—*Resolved*, That it is the sense of this Board that the best interests of the whole State will be subserved by the permanent location of the State Fair at Springfield, the Capital of the State. It will, in our opinion, forever settle all questions of local strife and emulation, and cement the whole commonwealth in one grand effort to build up such a Fair as will redound to the credit of the whole people.

JERSEY—*Resolved*, That it is the sense of the Jersey County Agricultural Board that the State Fair should be located at one point, and that we are decidedly in favor of its permanent location at Springfield.

KENDALL—*Resolved*, That the city of Peoria is our preference, and that we favor a location no farther south than Bloomington.

KNOX—*Resolved*, That the Knox County Agricultural Society is in favor of the State Fair being held at the place holding out the most liberal inducements, from year to year.

LEE—*Resolved*, That we believe the best interests of the State Fair will be promoted by locating in three different localities, and that this will give greater satisfaction to the people at large.

MACON—*Resolved*, That Macon county is the proper place for location of the State Fair.

MACOUPIN—*Resolved*, That it is the sense of this Association that the State Fair should be permanently located at Springfield, and not taken from place to place over the State.

MADISON—*Resolved*, That the interests of horticulture will not, in our opinion, be promoted by the permanent location of the State Fair, either at one place or at three places alternately.

MCHENRY (Woodstock branch)—*Resolved*, That we are in favor of the State Fair being made permanent in the three divisions—the Northern at Chicago or Freeport, the Central at Springfield, the Southern wherever the State Board may please to locate.

MCHENRY (Marengo branch)—*Resolved*, That we are in favor of a permanent location of the State Fair at Chicago.

MONROE—*Resolved*, That we believe it to be the sentiment of the people of the county of Monroe that the State Fair ought to be permanently located at one point in the Central part of the State and that the city of Springfield would be the most eligible point.

MOULTRIE—*Resolved*, First, that we are in favor of locating the Illinois State Fair at a central point in the State. Second, that we are in favor of Springfield as such central point, for the location of the same.

OGLE—*Resolved*, That we favor locating alternately in the Northern, Central and Southern Divisions of the State.

PEORIA—*Resolved*, That, in our opinion, the interests of the State Fair, and of the people of the State, will be better promoted by the location of the State Fair at two or three points in the State, as thus the exhibiters and visitors will be better accommodated than under the present plan of moving from place to place every two years.

PERRY—The Agricultural Board of Perry county is in favor and resolve unanimously that the State Fair should be held permanently at Springfield.

SCHUYLER—*Resolved*, That we are in favor of the location of the State Fair at some permanent place in the central portion of the State, and that our choice for that point would be Peoria or Springfield—Springfield preferred.

STARK—*Resolved*, That Peoria is our first choice, and Springfield second, as places for the permanent location of the Illinois State Fair.

TAZEWELL—*Resolved*, That it is the opinion of this Board that if the Illinois State Fair is to be continued, it should be permanently located at Chicago.

WHITE—*Resolved*, That we believe that it is to the best interest of the State that the State Fair should be permanently located at Springfield, the Capital of the State.

WILL—*Resolved*, It is the unanimous opinion of this Board that the State Fair should be permanently located at Chicago, which is also the wish of the people of the county, as far as ascertained.

WILLIAMSON—*Resolved*, That we consider it to the best interest of all the State to permanently locate the annual Fair at Springfield.

WINNEBAGO—*Resolved*, That it is the judgment and decision of the Winnebago County Agricultural Board that the State Fair should have three permanent locations—one in the Northern, one in the Central and one in the Southern Division of the State, to be held alternately at each location; said locations to be selected by the Illinois State Board of Agriculture.

On motion of Mr. Beaty,

The discussion of the report of the committee on permanent location was made the special order for 10 o'clock A. M., to-morrow.

Mr. Gillham moved to amend by making the special order for 7:30 o'clock P. M., this day.

Amendment adopted, and motion as amended adopted.

Motion of Mr. Haskell carried

That the President appoint the usual committees having duties to perform at the Winter meeting.

The President appointed committees. as follows:

Miscellaneous Awards.....Smith, Dysart and Beaty
Road Making.....Snoad, Beaty and Stookey
Farm Drainage.....Gillham, Moore and Vittum
Horticultural Display.....Pullen, Ellsworth and Emery
Display of Grains, Seeds, etc.....Haskell, Reynolds and Douglas

Mr. Reynolds introduced the following resolution, which,

On motion of Mr. Beaty,

Was adopted.

WHEREAS, It is notorious that certain products manufactured from tallow and grease are being sold in the cities and towns of this State as and for genuine butter; and

WHEREAS, Such sales are fraudulent, in so far as it is attended with misrepresentations and is generally extortionate in price as compared with the cost of said products; and

WHEREAS, Such traffic is carried on to the detriment and serious injury of the business of those dairymen who manufacture butter for market; therefore,

Resolved, That the General Assembly of this State be respectfully requested to pass whatever laws may be necessary to put an end to the fraudulent practice above referred to in this State.

On motion of Mr. Snoad,

The Board adjourned until 2 o'clock P. M.

AFTERNOON SESSION.

Board met, pursuant to adjournment.

President Scott in the chair.

Present—President Scott, Ex-President Gillham, Vice Presidents Ellsworth, Reynolds, Haskell, Moore, Dysart, Snoad, Vittum, Beaty, Pullen, Stookey and Washburn.

The following reports of superintendents of departments concerning the late Fair were received and ordered on file:

CLASS A—CATTLE.

REPORT OF SAMUEL DYSART, *Superintendent.*

To the State Board of Agriculture:

As Superintendent of Class A during your last State Fair, I have the pleasure of submitting to you the following report of the exhibition in my department, together with some individual thoughts with reference to future shows.

The specimens of cattle on exhibition at the Fair of 1880 were very good, but, much to our regret, the number was far less than at former Fairs. There were only 314 entries, as follows:

Shorthorns	39
Herefords	43
Devons	47
Polled Angus	16
Holsteins	44
Jerseys	57
Ayrshires	68

In the Ayrshire class there were not enough animals on the grounds to fill the rings on which awards were offered. Five hundred and ten dollars of the amount of premiums offered in this class remained not taken.

As compared with the preceding year, there was a falling off of nearly one-half in the number of cattle entries, there having been 616 entries at the Fair of 1879. This diminutive exhibition of cattle at the Illinois State Fair was a source of surprise and disappointment to visitors. This result leads us to look for the cause of the absence of exhibiters from our Fair, when other leading Fairs in different parts of the country had fine exhibitions in this department the same year. Certainly, the number of breeders of such stock is not less, and there must be some cause for non-attendance at our Fair. The reason assigned to me during the Fair, was, to use his words, as follows: "By the arrangement of your premium list, the prizes offered are so divided that it is impossible for any great number of one breed of cattle to win enough premium money to pay the expenses of bringing the stock to the Fair. Then you have destroyed all competition between breeds of like kinds, which, together with small herd and sweepstakes prizes, has taken away all the attractions of your Fair, for exhibiters, as they can do better by going elsewhere, to county and district Fairs, which offer better arranged premiums than those now offered by your Board. Give us a premium list like the Illinois State Fair used to have, and you will see them all here next year."

I remember well the fine exhibitions of cattle at the State Fairs held at Quincy, Decatur, Peoria and Ottawa. They have never been excelled in this country, and the records show that at those Fairs the largest prizes ever offered were contested for, but there was a less amount of premiums in the sum total of the class than in our last list.

Since my connection with this department as Superintendent, my own opinion has been in favor of large herd and sweepstakes prizes, and in favor of having breeds of like uses compete for them, with the view of making competition stronger; but the will of the Board has been in favor of a separation in all the classes of live stock, and I have recommended the adoption of such arrangements in the premium list as seemed to me for the best, according to your expressions. Hence, last year, to have the cattle department correspond with the other departments of stock, all breeds of cattle were separated from competition with each other, leaving the contest within each species. This was done, in the belief that it would give better satisfaction to exhibiters, and avoid what, in the minds of our Board, appears to be the greatest difficulty of modern times, that of obtaining honest and impartial committee-men to decide fairly on the merits in a contest where different breeds of the same natural qualities are brought together. In order to conform to that idea, a further subdivision of the premium fund was necessary, making the amounts such that the greatest sum of money that any one breed could receive was $516.

It has been argued that breeders of improved breeds of stock, exhibit at Fairs more for reputation and advertisement than for the purpose of making money. That is only partially correct. Men should, and perhaps do, love glory better than money, but glory coupled with money is much more attractive to the human race, and as far as *Fairs* are concerned, the former is usually sacrificed in order to gain the latter.

The object of holding Fairs, from their earliest history, has been to invite competition in all the different classes of exhibits. There is no more powerful stimulant to urge us on to success in any enterprise than that produced by competition and rivalry. Men often take chances in preference to certainty, and the greater the chance, the greater will be the effort put forth to win, from the fact in a greater victory there is more renown in securing the prize.

Exhibiters of live stock at our Fair go there at a heavy expense, and unless there is, at least, a chance to win enough to pay expenses, they will overlook its importance and go to other places with better prospects.

The reflection cast upon the honor and integrity of our people, when we say that we can no longer get men of unbiased minds of sufficient strength to enable them to rise above personal interest or prejudice and make a just award where breeds compete, and that we are forced to adopt a plan to avoid such competition, is not very creditable to us in our day and generation. We now say to the cattle breeders of the world, your rivalry of merits between breeds shall not be brought to our Fair for arbitration before a competent jury, and we further say to them, we offer you a list of *peaceful* prizes, although not large; you are all treated alike, and no one to compete with but your own kinsfolk in breeding the same class of stock.

We forget that family quarrels are the most bitter, hence, at our last Fair, when we thought no contention could arise, there were as many and as virulent complaints at some of the awards made by committees as we had ever heard before.

If the Board can devise a plan whereby the defeated exhibiter at its Fairs will be satisfied and acquiesce in the judgment of committees in all cases, then we will have made a most wonderful discovery and a long stride in the direction of a peaceful management of Fairs; but if we can only succeed in that difficult undertaking by destroying the influence of competition, then we sacrifice, in a great measure, all the benefits of the Fair to the people who are not in attendance.

The great St. Louis Fair, which, in connection with the Illinois State Fair, was a few years ago the great battle-ground of the principal cattle breeders in our country for the grand prizes, adopted the non-competing plan in their premium list a few years since, with much larger prizes than we offer, and already the fine exhibitions of noted herds have deserted her Fair grounds. One year, on this plan, made the cattle show at our State Fair less than it had been for many years, and, in my opinion, if continued by our Board it will destroy the interest, not only in the cattle department, but in all the other departments of live stock. The arrangement of the premium list of 1879, in which there were two classes of sweepstakes prizes—one for milk breeds of cattle and the other for beef breeds—gave far better satisfaction than the list of 1880, and I hope the Board will again adopt the system of 1879, or something similar.

I have urged the Board, in a previous report of Class A., to omit from the premium list prizes for the Devon breed of cattle—not from any prejudice against that breed, but from the fact that their history has proven them to be no longer a favorite class of cattle with the people of our country. In their native country they are less numerous than in former years, and are being rapidly superseded by more profitable breeds.

The records of our own State Agricultural Society during the period of its existence show the same to be the fact in this country. The number of exhibiters of this breed has been gradually decreasing since the first Fair was held, until, of late years, there are usually about enough animals at our Fairs to take the premium money without competi-

tion. We also learn from said records that of the $47,736 which has been paid in premiums to the cattle department since the organization of the society, $5,790 of this amount has been paid to the Devon breed of cattle—a sum that would go a long way toward purchasing all the thoroughbred animals of this breed in our State at the present time—and further, that this amount of money has been paid to 44 exhibiters in 27 years. The Board did not think it wise to adopt my former suggestion, and I again call your attention to the question of the wisdom and utility of continuing this breed of cattle in our premium list. Believing in the progression of stock breeding, I think new classes will be asking your encouragement, consequently those that have been fostered for many years without showing sufficient merit to win public favor should be abandoned.

Lot	Breed, etc.	4 years old or over	3 years old and under 4	2 years old and under 3	1 year old and under 2	Under 1 year old	Total number entries	Amount premiums offered	Amount premiums paid
1	Shorthorn bulls		2	2	1	1	6	$135	$115
1	Shorthorn cows and heifers	4	3	5	4	3	19	175	175
2	Shorthorn herd, bull and 5 cows or heifers						2	50	50
2	Shorthorn breeders' ring, 5 cattle, male or female						1	50	50
3	Shorthorn sweepstakes, bulls						4	50	50
3	Shorthorn sweepstakes, females						7	50	50
	Total	4	5	7	5	4	39	$510	$490
4	Hereford bulls		2	1	3	2	8	135	120
4	Hereford cows and heifers	7	1	7	6	4	25	175	160
5	Hereford herd, bull and 5 cows or heifers						2	50	50
5	Hereford breeders' ring, 5 cattle, male or female						1	50	50
6	Hereford sweepstakes, bulls						3	50	50
6	Hereford sweepstakes, females						4	50	50
	Total	7	3	8	9	6	43	$510	$480
7	Devon bulls		3		2	5	10	135	95
7	Devon cows and heifers	7	2	4	4	5	22	175	175
8	Devon herd, bull and 5 cows or heifers						3	50	50
8	Devon breeders' ring, 5 cattle, male or female						3	50	50
9	Devon sweepstakes, bulls						4	50	50
9	Devon sweepstakes, females						5	50	50
	Total	7	5	4	6	10	47	$510	$470
10	Polled Angus bulls		1		1	2	4	135	70
10	Polled Angus cows and heifers	5			2	2	9	175	95
11	Polled Angus herd, bull and 5 cows or heifers						1	50	50
11	Polled Angus breeders' ring, 5 cattle, male or female							50	
12	Polled Angus sweepstakes, bull						1	50	50
12	Polled Angus sweepstakes, females						1	50	50
	Total	5	1		3	4	16	$510	$315
13	Holstein bulls		3		2		5	135	60
13	Holstein cows and heifers	9	4	4	5		22	175	140
14	Holstein herd, bull and five cows or heifers						4	50	50
14	Holstein breeders' ring, 5 cattle, male or female							50	
15	Holstein sweepstakes, bulls						4	50	50
15	Holstein sweepstakes, females						9	50	50
	Total	9	7	4	7		44	$510	$550
16	Jersey bulls		3	2	3	5	13	135	135
16	Jersey cows and heifers	6	1	5	6	4	22	175	160
17	Jersey herd, bull and 5 cows or heifers						2	50	50
17	Jersey breeders' ring, 5 cattle, male or female							50	
18	Jersey sweepstakes, bulls						7	50	50
18	Jersey sweepstakes, females						13	50	50
	Total	6	4	7	9	9	57	$510	$445

Lot	Breed, etc.	4 years old or over	3 years old and under 4	2 years old and under 3	1 year old and under 2	Under 1 year old	Total number entries	Amount premiums offered	Amount premiums paid
19	Ayrshire bulls		3	2	4	3	12	$135	$135
19	Ayrshire cows and heifers	10	5	6	7	3	31	175	175
20	Ayrshire herd, bull and five cows or heifers						3	50	50
20	Ayrshire breeders' ring, 5 cattle, male or female						1	50	50
21	Ayrshire sweekstakes, bulls						7	50	50
21	Ayrshire sweepstakes, females						14	50	50
	Total	10	8	8	11	6	68	$510	$510
	Grand total	48	33	38	50	39	314	3,570	3,060

Respectfully submitted.

SAMUEL DYSART,
Superintendent Class A.

CLASS B—HORSES.

REPORT OF JOHN LANDRIGAN, *Superintendent.*

To the State Board of Agriculture:

The quality of the exhibit in this department has not been surpassed at any previous Fair, and while the number of entries is somewhat less than at the last Fair, the show was highly creditable to the State.

The arrangement of offerings gave exhibiters good satisfaction, and the awards, with few exceptions, were made according to merit, and met the approbation of the public.

It is often a matter of impossibility to select from the crowds at the Fairs competent judges, and until some successful plan of securing the attendance of the regularly appointed committeemen is adopted, some of the awards will be subject to criticism.

The number of entries, amount of premiums offered and paid at the late Fair is as follows:

Lot	Breed, etc.	4 years old and over	3 years old and under 4	2 years old and under 3	1 year old and under 2	Under 1 year old	Brood mare with 2 colts	Stallion with 5 sucking colts	Total number entries	Amount premiums offered	Amount premiums paid
22	Thoroughbred stallions	7	1	2	1	2		1	14	$200	$180
22	Thoroughbred mares	5	1	6	5	2	1		20	180	170
23	Thoroughbred sweepstakes, stallions								8	50	50
23	Thoroughbred sweepstakes, mares								13	50	50
	Total	12	2	8	6	4	1	1	55	$480	$450
24	Roadster stallions	14	2	10	6	10		2	44	200	200
24	Roadster mares	10	6	6	5	8	1		36	180	180
25	Roadster sweepstakes, stallions								17	100	100
25	Roadster sweepstakes, mares								18	50	50
	Total	24	8	16	11	18	1	2	115	$530	$530
26	Horses for all work, stallions	11	4	6	6	11		3	41	200	200
26	Horses for all work, mares	13	4	3	5	11	4		40	180	180
27	Horses for all work sweepstakes, stallions								27	50	50
27	Horses for all work sweepstakes, mares								21	50	50
	Total	24	8	9	11	22	4	3	129	$480	$480

Lot.	Breed, etc.	4 years old or over	3 years old and under 4	2 years old and under 3	1 year old and under 2	Under 1 year old	Brood mare with 2 colts	Stallion with 5 sucking colts	Total number entries	Amount premiums offered	Amount premiums paid
28	French draft stallions	6	2					1	9	$200	$110
28	French draft mares	2		1					3	180	60
29	French draft sweepstakes, stallions								7	50	50
29	French draft sweepstakes, mares								3	50	50
	Total	8	2	1				1	22	$480	$270
30	English draft stallions	5	3	4	2				14	200	125
30	English draft mares	2	4	3	2				11	180	125
31	English draft sweepstakes, stallions								9	50	50
31	English draft sweepstakes, mares								7	50	50
	Total	7	7	7	4				41	480	350
32	Draft team								5	60	60
33	Horses for agricultural purposes, stallions	13	3	3	3	10		3	35	200	200
33	Horses for agricultural purposes, mares	11	4	3	4	7	3		32	180	170
34	Horses for agricultural sw'pstakes, stallions								24	50	50
..	Horses for agricultural sweepstakes, mares								17	50	50
	Total	24	7	6	7	17	3	3	108	$480	$470
35	Saddle stallions								4	60	30
35	Saddle mares								7	60	50
35	Saddle geldings								8	60	60
	Total								19	$180	$140
36	Carriage team								16	60	60
36	Family mare or gelding								19	30	30
	Total								35	$90	$90
	Gentlemen's driving horses—										
37	Pair of mares								7	60	60
37	Pair of geldings								5	60	60
37	Single stallion								12	60	60
37	Single mare								14	45	45
37	Single gelding								12	45	45
	Total								50	$270	$270
38	Jacks	2		1		1			4	155	55
38	Jennets		2	1	1	1			5	90	70
38	Mules		2	3	2	5			12	90	80
39	Sweepstakes, Jack with 3 mules								2	50	50
39	Sweepstakes, Jennet with 2 colts								1	25	25
39	Sweepstakes, Mule team 3 years or over								3	40	40
	Total	2	4	5	3	7			27	$450	$320
40	Equestrianism, boys' riding								10	21	21
	Grand total	101	38	52	42	68	9	10	616	$4,001	$3,451

Respectfully submitted.

JOHN LANDRIGAN,
Superintendent Class B.

CLASS C—SHEEP.

REPORT OF D. W. VITTUM, JR., *Superintendent.*

To the State Board of Agriculture:

The Sheep Department of the Illinois State Fair, for 1880, presented little variance from its predecessors, since they have been under the charge of the present superintendent. The most striking peculiarity of the last exhibition was the absence of the usual number of exhibiters from outside the State. The cause of this may be found, in part, in the conflicting attractions of contemporary exhibitions; and, in part, in the fact that the demand for sheep for breeding purposes had reduced the flocks of the more prominent breeders to the minimum number required for home use—thus removing at once the inducement and the opportunity for fitting and showing animals.

The sheep pens were occupied by 292 animals, to-wit:

Fine Wools	139
Middle Wools	75
Long Wools	78
Total	292

While falling below the exhibition of 1879 in point of numbers, I am happy to bear testimony to the general high merit of the animals shown—alike creditable to the skill and enterprise of the breeders, and worthy of a place and record in the annals of the State and its recognized and authorized exhibition.

The liberality of the State Board of Agriculture, and the admitted equity of its regulations, with their impartial enforcement, have brought about the most pleasant relations between the patrons and officers of the Fair; and I find pleasure in bearing testimony to the uniform courtesy of exhibiters, and their patient submission to such inconveniences as were found inseparable from the late Fair, by reason of unfavorable arrangements, with the time and labor necessarily involved in passing from the gates and offices to the remote corner of the grounds where the sheep pens were located.

In the discharge of my duty as superintendent, I found myself compelled, in one instance, to enforce the penalty provided by the rules of the Board, in case of the attempt of exhibiters to impose upon the Board by the entry of ineligible animals. Evidence which I deemed satisfactory was brought to my knowledge that a Fine Wool Ewe, entered in Lot 49, by Taylor Bros., of Waynesville, Ill., was not purely bred, as claimed, and that the fact of ineligibility was known to the parties attempting to show the animal. I ruled the animal from the show, and excluded all entries of sheep made by the firm from exhibition during the remainder of the Fair.

It is justice to Messrs. Taylor Bros. to say that they asserted their ability and intention to disprove the correctness of the information upon which the ruling was made. It is just to myself that the fact that such promise has not been made good, should be known.

The decision of the State Board to discontinue the employment of competent and recognized jurymen for the designation of awards, brought to the management of the Sheep Department all the inconveniences under which it had formerly labored, and which have been heretofore enumerated. Less than one-third of the committeemen designated in the published list reported for duty. This necessitated the substitution of such parties as could be found and prevailed upon to serve as committeemen; imposed additional labor on the Superintendent; involved delay in the return of his books; worked great inconvenience to exhibiters, and at times made adherence to the published programme a practical impossibility.

An experience of four years as Superintendent of the Sheep Department confirms my convictions of the propriety of employing experts as committeemen; and I wish to repeat, with emphasis, all that I have heretofore said in support of such a policy.

The ability to discriminate intelligently upon all the points combined in the perfect type of sheep, is not found among the average of men who are willing to serve as committeemen when attending a Fair as mere lookers-on. In the event that competent men thus be found, in the absence of previous notice, the demand upon their time is usually so pressing as to necessitate a more superficial examination of animals than is consistent with the responsible relations between the Board and its patrons.

Lot	Breed, etc.	2 years old and under 3	1 year old and under 2	Under 1 year old	Total number entries	Amount premiums offered	Amount premiums paid
41	Cotswold rams	4	8	7	19	$70	$60
41	Cotswold ewes	16	12	12	40	70	70
42	Cotswold sweepstakes, rams	....	....	....	7	20	20
42	Cotswold sweepstakes, ewes	....	....	....	10	15	15
42	Cotswold sweepstakes, ram and 5 ewes	....	....	....	2	20	20
42	Cotswold sweepstakes, ram with 5 of his get	....	....	....	2	20	20
	Total	20	20	19	80	$215	$205

Lot.	Breed, etc.	2 years old and under 3	1 year old and under 2	Under 1 year old	Total number entries	Amount premiums offered	Amount premiums paid
43	Leicester or Lincoln rams	2	2	2	6	$70	$70
43	Leicester or Lincoln ewes	2	2	2	6	70	70
44	Leicester or Lincoln sweepstakes, rams				2	20	20
44	Leicester or Lincoln sweepstakes, ewes				2	15	15
44	Leicester or Lincoln sweepstakes, ram and 5 ewes				1	20	20
44	Leicester or Lincoln sweepstakes, ram with 5 of his get				1	20	20
	Total	4	4	4	18	$215	$215
45	Southdown rams	6	6	9	21	70	70
45	Southdown ewes	9	6	5	20	70	70
46	Southdown sweepstakes, rams				9	20	20
46	Southdown sweepstakes, ewes				8	15	15
46	Southdown sweepstakes, ram and 5 ewes				3	20	20
46	Southdown sweepstakes, ram with 5 of his get				2	20	20
	Total	15	12	14	63	$215	$215
47	Shropshiredown, etc., rams	2	3	3	8	70	70
47	Shropshiredown, etc., ewes	2	2	2	6	70	70
48	Shropshiredown, etc., sweepstakes, rams				4	20	20
48	Shropshiredown, etc., sweepstakes, ewes				2	15	15
48	Shropshiredown, etc., sweepstakes, ram and 5 ewes				1	20	20
48	Shropshiredown, etc., sweepstakes, ram with 5 of his get				1	20	20
	Total	4	5	5	22	$215	$215
49	American Merino rams	10	11	15	36	70	70
49	American Merino ewes	29	20	15	64	70	70
50	American Merino sweepstakes, rams				15	20	20
50	American Merino sweepstakes, ewes				36	15	15
50	American Merino sweepstakes, ram and 5 ewes				8	20	20
50	American Merino sweepstakes, ram with 5 of his get				6	20	20
	Total	39	31	30	165	$215	$215
51	French Merino, etc., rams	2	2	4	8	70	70
51	French Merino, etc., ewes	3	1	1	5	70	55
52	French Merino, etc., sweepstakes, rams				4	20	20
52	French Merino, etc., sweepstakes, ewes				3	15	15
52	French Merino, etc., sweepstakes, ram and 5 ewes				1	20	20
52	French Merino, etc., sweepstakes, ram with 5 of his get				1	20	20
	Total	5	3	5	22	$215	$200
	Grand total	87	75	77	370	$1,290	$1,265

Respectfully submitted.

D. W. VITTUM, JR.,
Superintendent Class C.

STATE OF KANSAS, }
COUNTY OF LINN. }

I do hereby certify that Tom Taylor did attempt to show a Grade Ewe at Springfield State Fair, Illinois, in the year 1880, which he purchased of my brother, Samuel McFadden, in the spring of 1879; she was then a yearling. She was a Grade Ewe, and my brother sold her as such. After she was purchased by said Taylor he left her in my brother's charge about a week, in which time I put a private mark on her. I saw the same private mark on said Ewe when Tom Taylor had her on exhibition at said Fair.

Z. McFADDEN.

Subscribed to and sworn to by me, a Justice of the Peace, this 11th day of December, 1880.

E. N. PHELPS,
Justice of the Peace.

CLASS D—SWINE.

REPORT OF WM. VOORHIES, JR., *Superintendent.*

To the State Board of Agriculture:

The exhibit of Swine at the late State Fair was up to the previous high standard as to quality, but in number of entries was less than heretofore, as will be seen by the following table, giving the number of entries, amount of premiums offered and paid.

The classification of premiums gave very general satisfaction to exhibiters.

The difficulty of obtaining competent judges, on the Fair Grounds, from the crowd in attendance, gave some exhibiters good cause for complaint as to awards made.

Lot	Breed, Etc.	2 years old and under 3	1 year old and under 2	Under 1 yr. old.	Total number entries	Amount premiums offered.	Amount premiums paid
54	Berkshire boars	10	6	17	33	$ 85	$ 85
54	" sows	13	19	25	57	85	85
54	" sow and pigs				7	30	30
54	" boar and 4 sows				8	30	30
54	" boar with 5 of his get				3	20	20
55	" sweepstakes boars				20	20	20
55	" " sows				21	20	20
	Total	23	25	42	149	$285	$285
56	Poland China boars	10	8	21	39	85	85
56	" sows	12	11	26	49	85	85
56	" sow and pigs				7	30	30
56	" boar and 4 sows				7	25	25
56	" boar with 5 of his get				7	20	20
57	" sweepstakes boars				20	20	20
57	" " sows				21	20	20
	Total	22	19	47	150	$285	$285
58	Chester White boars	2	5	5	12	85	75
58	" sows	4	6	9	19	85	85
58	" sow and pigs				1	30	20
58	" boar and 4 sows				1	25	25
58	" boar with 5 of his get				3	20	20
59	" sweepstakes boars				7	20	20
59	" " sows				9	20	20
	Total	6	11	14	52	$285	$265
60	Essex boars	2	2	8	12	85	75
60	" sows	5	5	7	17	85	85
60	" sow and pigs				4	30	30
60	" boar and 4 sows				2	25	25
60	" boar with 5 of his get				2	20	20
61	" sweepstakes boars				8	20	20
61	" " sows				9	20	20
	Total	7	7	15	54	$285	$275
62	Small Yorkshire boars	2	1	5	8	85	75
62	" sows	2	5	5	12	85	85
62	" sow and pigs				2	30	30
62	" boar and 4 sows				2	25	25
62	" boar and 5 of his get				1	20	20
63	" sweepstakes boars				2	20	20
63	" " sows				5	20	20
	Total	4	6	10	32	$285	$275

Lot.	Breed, Etc.	2 years old and under 3	1 year old and under 2	Under 1 yr. old	Total number entries	Amount premiums offered	Amount premiums paid
	Other distinct breeds—						
64	Boar and 5 sows	....	....	....	2	$50	$40
	Grand total	62	68	128	439	$1,475	$1,425

Respectfully submitted.

WM. VOORHIES, JR.,

Superintendent Class D.

CLASS E—POULTRY.

REPORT OF H. D. EMERY, *Superintendent.*

To the State Board of Agriculture:

As Superintendent of Class E, Poultry, I would report a large and remarkably fine display, only marred by the want of symmetry in the coops of exhibiters, who pay little attention to the requirements of the Board regarding size of coops.

There were in all 352 entries, 90 of which were in the Asiatic lot, comprising Brahmas and Cochins. The birds were unusually fine, and attracted general attention. In the lot comprising Dominiques, Dorkings and Plymouth Rocks, there were 18 entries, mostly the last named, which seemed to be the favorite fowl in the show; there were some of the finest birds in this breed ever shown. The Spanish lot was confined almost entirely to the Leghorn fowls, with 28 entries. The Hamburgs, Polish and French were lightly represented, while the Game lot was almost entirely neglected. The Bantam lot was quite full, and the little pets were great favorites with visitors.

The display of Turkeys was the finest ever made at any show of the Board.

Ducks and Geese were out in great force and with standard specimens.

Rabbits and Ferrets were a constant attraction.

The two displays of Pigeons were of rare excellence and varieties. Exhibiters complain that a classification of varieties is not made as is done with fowls.

I have no recommendation of changes in the list.

The following table shows the number of entries, amount of premiums offered, and paid:

Lot.	Breed.	Number of entries.	Amount premiums offered.	Amount premiums paid.
65	Asiatic	90	$70	$60
66	Dominique, Dorking	18	50	17
67	Spanish	28	50	34
68	Hamburg	18	60	26
69	Polish	11	50	24
70	French	5	30	8
71	Game	14	120	24
72	Bantams	39	90	53
73	Miscellaneous	7	45	13
74	Guineas	10	20	15
75	Turkeys	20	72	28
76	Ducks	37	45	40
77	Geese	15	30	22
78	Rabbits	24	35	33
79	Ferrets	5	10	10
80	Displays	11	40	40
	Total	352	$817	$447

Respectfully submitted.

H. D. EMERY,

Superintendent Class E, Poultry.

CLASS F—MECHANIC ARTS—Section 1.

REPORT OF JOHN M. EPLER, *Superintendent.*

To the State Board of Agriculture:

The exhibit in this section was large and varied, and attracted very general attention. The awards gave very general satisfaction.

There are some recommendations of committees as to miscellaneous entries, which will be submitted for the approval of the Board.

The following table gives the number of entries, amount of premiums offered and paid in this department:

Lot.	Articles.	Amount of entries	Silver Medals.		Diplomas.		Cash Premiums.	
			No. offered.	No. award'd.	No. offered.	No. award'd.	Amount offered.	Amount paid.
81	Stoves, castings, etc	8	9	3	5	1	$35	$35
82	Household furniture	16	7	3	1	1	30	20
83	Manufactures	20	31	31	13	.....	10	10
84	Sewing and knitting machines, etc	4	.....	.....	.....	.....	.....	.....
	Total	48	47	17	19	2	$75	$65

CLASS F—MECHANIC ARTS—Section 2.

REPORT OF W. M. SMITH, *Superintendent.*

To the State Board of Agriculture:

The exhibition of articles in this department at the late State Fair covered several acres, and furnished an attraction in this line not heretofore excelled at any Fair held in the State.

The extent of the exhibit can be only partially realized by examining the following table, which gives the number of entries in each lot, as well as the amount of premiums offered and paid.

The large number of portable engines exhibited at our Fairs will furnish all the power required by exhibiters, and it is recommended that the Board hereafter allow exhibiters to furnish their own motive power.

The want of time makes it impossible to judge of the comparative excellence of the engines, agricultural implements, and various kinds of machinery exhibited in this department; neither do the majority of exhibiters desire the hasty inspection of judges with the simple adnouncement of award, could they have the more satisfactory certificate of the excellence of their articles clearly defined in the report of a competent committee of experts, briefly describing the special merits of the articles deemed worthy of the endorsement of the Board. Such reports would possess much interest for the many readers of the Annual Reports of the Department.

It is recommended that exhibiters in this department have the privilege of showing their portable engines and other implements on wheels in front of the amphitheater, at some spec fied hour each afternoon during the week of the Fair.

The exhibition, at the last Fair, of engines drawing vehicles and implements of various kinds attracted general attention, and not only pleased the visitors in the amphitheatre, but gratified also the manufacturers who have heretofore been compelled to "show to empty seats," when the hour for the programme in ring was announced.

Lot.	Articles.	Number of entries	Silver Medals.		Diplomas.		Cash Premiums.	
			Offered.	Awarded.	Offered.	Awarded.	Offered.	Paid.
85	Engines, machinery, etc	65	26	10	7	5	$50	$50
86	Light machines	.....	15	.....	.....	.....	.....	.....
87	Implements, vehicles, etc	49	11	5	6	7	55	45
88	Farm machinery	325	.....	.....	.....	.....	.....	.....
	Total	439	52	15	13	12	$105	$95

MACHINERY ON EXHIBITION.

Threshers—
Kingman & Co., Peoria.
McDonald Manufacturing Co., Fond du Lac, Wis.
J. I. Case & Co., Racine, Wis.
G. Westinghouse & Co., Schenectady, N. Y.
G. A. VanDuyn & Co., Springfield—4 entries.
C. Aultman & Co., Canton, Ohio.
Gaar, Scott & Co., Richmond, Ind.
Rinehart, Ballard & Co., Springfield, Ohio.
Harrison Machine Works, Belleville.
Nicholas, Shepherd & Co., Battle Creek, Mich.
H. A. Pitts & Son, Chicago.

Hedge Trimmers—
Hudson & House, Springfield.

Reapers—
D. M. Osborn & Co., Auburn, N. Y.
A. J. Glass, Chicago.
C. R. Post, Springfield.
Wayne Agricultural Works, Richmond, Ind.

Mowers—
W. F. Olin, Chicago.
Williams Harvester Co., Cedar Rapids, Iowa—2 entries.
S. B. Town, Quincy.
C. Aultman & Co., Canton, Ohio.
Wayne Agricultural Works, Richmond, Ind.
D. M. Osborn & Co., Auburn, N. Y.
A. J. Glass, Chicago.
C. R. Post, Springfield.

Combined Reaper and Mower—
Williams' Harvester Co., Cedar Rapids, Iowa—2 entries.
S. B. Town, Quincy.
C. Aultman & Co., Canton, Ohio—2 entries.
D. M. Osborn & Co., Auburn, N. Y.
A. J. Glass, Chicago.

Grain Binder—
W. F. Olin, Chicago.
A. J. Glass, Chicago.
C. Aultman & Co., Canton, Ohio.
N. C. Thompson, Rockford.
D. M. Osborn & Co., Auburn, N. Y.—2 entries.
Sandwich Manufacturing Co., Sandwich—2 entries.
C. R. Post, Springfield.

Horse Rake—
Kingman & Co., Peoria.
Keystone Manufacturing Co., Sterling—2 entries.
G. A. VanDuyn, Springfield.
N. E. Thompson, Rockford.
C. R. Post, Springfield—5 entries.

Cider Mills—
P. P. Mast & Co., Springfield, Ohio—2 entries.
Keystone Manufacturing Co., Sterling.
M. P. Schenck, Fulton, N. Y.

Corn and Cob Mills—
G. A. VanDuyn & Co., Springfield.

Wind Mills—
Kingman & Co., Peoria.
C. H. Miller, Millington.
Mast, Foos & Co., Springfield, Ohio—2 entries.
G. A. VanDuyn & Co., Springfield—2 entries.
T. J. Mitts, Springfield—2 entries.
Sandwich Enterprise Co., Sandwich.
Powell & Douglas, Waukegan.
Clark & Co., Somonauk.

Corn Stalk Cutters—
Kingman & Co., Peoria.
G. W. Brown, Galesburg.
Deer, Mansur & Co., Moline.
N. C. Thompson, Rockford.
Jacob Farlow, Dublin, Ind.

Power Corn Shellers—
Kingman & Co., Peoria.
Sandwich Manufacturing Co., Sandwich.

Harvesters—
A. J. Glass, Chicago.
Williams Harvester Co., Cedar Rapids, Iowa.
N. C. Thompson, Rockford.
S. B. Town, Quincy—2 entries.
Craver & Steel, Grinnell, Iowa.
C. R. Post, Springfield.

Walking Plows—
South Bend Iron Works, South Bend, Ind.
G. A. VanDuyn, Springfield—3 entries.
Kingman & Co., Peoria.
Parlen & Orendorff, Canton—15 entries.
N. C. Thompson, Rockford—12 entries.
T. D. Brewster & Co., Peru City—9 entries.
Smith Plow Co., Pekin—3 entries.
Briggs & Enoch, Rockford—9 entries.
C. R. Post, Springfield.
Deere, Mansur & Co., Moline—16 entries.
Morrison Bros., Fort Madison, Iowa—13 entries.
J. I. Case, Racine, Wis.—26 entries.

Riding Plows—
South Bend Iron Works, South Bend, Ind.
C. R. Post, Springfield.
G. A. VanDuyn & Co., Springfield—2 entries.
Kingman & Co., Peoria.
Morrison Bros., Fort Madison, Iowa.
George Seigel, Carlinville.
J. I. Case & Co., Racine, Wis.—3 entries.

P. P. Mast & Co., Springfield, Ohio.
N. C. Thompson, Rockford.
Briggs & Enoch, Rockford.
G. W. Brown, Galesburg.
T. D. Brewster & Co., Peru City.
Parlen and Orendorff, Canton—2 entries.
Smith Plow Co., Pekin—2 entries.
Deere, Mansur & Co., Moline.
Pratt Bros. & Co., Monmouth.

Harrows—
R. Lean, Mansfield.
C. R. Post, Springfield.
G. A. VanDuyn & Co., Springfield.
Kingman & Co., Peoria.
David T. Lowe, Ohlman.
F. M. Parker, Oakland.
Martin & Bro., Peoria.
Smith Plow Co., Pekin.
J. I. Case & Co., Racine, Wis.
Keystone Manufacturing Co., Sterling.
E. B. Rhea, Peoria.
Parlen & Orendorff, Canton.

Cultivators—
J. I. Case & Co., Racine, Wis.—2 entries.
Kingman & Co., Peoria.
N. C. Thompson, Rockford—3 entries.
P. P. Mast & Co., Springfield, Ohio—2 entries.
F. M. Parker, Oakland.
Parlen & Orendorff, Canton—2 entries.
T. D. Brewster & Co., Peru City—2 entries.
Morrison Bros., Fort Madison, Iowa.
G. W. Brown, Galesburg—2 entries.
Smith Plow Co., Pekin—2 entries
C. R. Post, Springfield—2 entries.
Briggs & Enoch, Rockford.
Deere, Mansur & Co., Moline—2 entries.
Pratt Bros. & Co., Monmouth—2 entries.
Sandwich Enterprise Co., Sandwich—3 entries.

Corn Planters—
Brown & Co., Decatur.
Wait Manufacturing Co., Grand Haven, Mich.
Briggs & Enoch, Rockford.
Kingman & Co., Peoria.
A. H. Saunders & Co., Springfield.
C. R. Post, Springfield.
G. W. Brown, Galesburg—3 entries.
Keystone Manufacturing Co., Sterling—2 entries.
Leonhard Greiser, Minonk.
Deere, Mansur & Co., Moline.

Check Rower—
Brown & Co., Decatur.
C. R. Post, Springfield.
Wait Manufacturing Co., Grand Haven, Mich.
J. Barrick & Co., Blue Mound.
Mundell & Allen, Arrowsmith.
Kingman & Co., Peoria.
E. A. Morphew, Petersburg.
G. A. VanDuyn & Co. Springfield—4 entries.

Grain Drill—
Kingman & Co., Peoria.
Esler & Roperquet Manufacturing Co., Belleville.
G. A. VanDuyn, Springfield—2 entries.
Martin & Bro., Peoria.
A. H. Saunders, Springfield.
Rude Bros., Liberty, Ind.
Wayne Agricultural Works, Richmond, Ind.
P. P. Mast & Co. Springfield, Ohio—2 entries.
E. B. Rhea, Peoria.
J. B. Crowell & Co., Greencastle, Pa.
W. P. Elam & Co., Petersburg—2 entries.
C. R. Post, Springfield.
Norre Bros., Rushville, Ind—3 entries.

Rollers—
Kingman & Co., Peoria.

Fanning Mills—
G. A. VanDuyn, Springfield—2 entries.
Johnson & Field, Racine, Wis.

Hand Corn Shellers—
Kingman & Co., Peoria.
Keystone Manufacturing Co., Sterling.
Sandwich Manufacturing Co., Sandwich—2 entries.

MISCELLANEOUS.

Harvester and Binder Attachment—
Williams' Harvester Co., Cedar Rapids, Iowa.

Stock Hydrant—
Jno. S. Campbell, Clayton.
T. V. Nichols, Olena.

Hay Tedder—
Keystone Manufacturing Co., Sterling.

Model Stock Pen—
R. D. London, Wilmington.

Self Rake Dropper—
S. B. Town, Quincy.

Grain Harvester and Binder—
Parker & Dement, Beloit, Wis.

Grain Header—
C. R. Post, Springfield.

Lawn Mower—
Mast, Foos & Co., Springfield, Ohio—7 entries.

Automatic Car-coupler—
Mast, Foos & Co., Springfield, Ohio.

Broom Corn Tabler—
F. M. Parker, Oakland.

Broadcast Seed Sower—
Utter Manufacturing Co., Rockford.

Stump Puller—
W. H. Lucas, Petersburg.

Model of Harrow—
E. McDermott, Charleston.

Double Shovel Plows—
E. McDermott, Charleston.

Grubbing and Post Lifting Machines—
R. F. Adams, Nashville, Tenn—2 entries.

Combined Corn Planter and Drill Attachment—
Wait Manufacturing Co., Grand Haven.

Respectfully submitted.

W. M. SMITH, *Superintendent, Class F, Section 2.*

CLASS G—FARM PRODUCTS.

REPORT OF SAMUEL DOUGLAS, *Superintendent.*

To the State Board of Agriculture:

There was a fine exhibit of grains, seeds, vegetables, dairy products and pantry stores at the late Fair.

The show of farm products was much larger than last year, and included nearly every variety of cereal and vegetable.

The want of cases to protect the bread and cakes from dust and exposure the previous year had the effect to discourage exhibiters of this class of articles for the late Fair, so that, while the show reflected great credit on the exhibiters, the number of entries was much below that of 1879.

Lot.	Articles.	Number of entries.	Diplomas.		Cash Premiums.	
			No. offered.	No. awarded.	Amount offered.	Amount paid.
89	Grains and seeds	165	1		$235	$175
90	Vegetables	165			142	134
91	Butter, cheese, etc	24	5		118	88
92	Bread, cakes, etc	171	1	1	141	126
93	Bread, cakes, etc., by girl under 13 years old	55			90	88
	Total	580	7	1	$726	$611

Respectfully submitted.

SAMUEL DOUGLAS.
Superintendent Class G.

CLASS H—HORTICULTURE—Section 1.

REPORT OF GEORGE S. HASKELL, *Superintendent.*

To the State Board of Agriculture:

The display in this department was not up to the high standard reached by that of the previous year, either in the extent or quality of the exhibit, owing largely to the drouth which prevailed during the past season in the central part of the State, where the Fair was held.

This department requires space 50x100 feet, and it is recommended that future specifications provide for that amount.

The number of entries, amount of premiums offered and paid in this section of Class H, at the last Fair, are as follows:

Lot.	Articles.	Number of entries.	Silver Medals.		Diplomas.		Cash Premiums.	
			Number offered.	Number award'd.	Number offered.	Number award'd.	Amount offered.	Amount award'd.
94	Trees, flowers and plants (professional)	51	3	1	3	1	$289	$154
95	C· t flowers (professional)	78			2	2	262	174
96	Flowers and plants (amateur)	35					77	62
97	Cut flowers (amateur)	115					135	116
	Total	279	3	1	5	3	$763	$506

Respectfully submitted.

GEORGE S. HASKELL.
Superintendent Class H, Section 1.

CLASS H—HORTICULTURE—SECTION 2.

REPORT OF B. PULLEN, *Superintendent.*

To the State Board of Agriculture:

Your superintendent begs leave to report that the exhibit in this department was not in all respects equal to some of its predecessors. It was confidently expected that, in view of the very general and full crop of fruit throughout the State, this feature of the department would be remarkably large and complete. In this we were disappointed—not as to quality, but as to extent.

In lot 100, jellies, preserves, canned fruits, etc., under the new classification, reducing the number of lots and offering increased premiums for displays, the result was very gratifying. The quality and extent of exhibit has never been excelled. Exhibiters were gratified with the change, and the labor and expense of managing this branch of the department was greatly reduced thereby.

Lot	Articles.	Number of entries	Silver Medals.		Diplomas.		Cash Prem's.	
			Number offered	Number awarded	Number offered	Number awarded	Amount offered	Amount paid
98	Home-grown fruits (professional)	39					$308	$253
99	Home-grown fruits (amateur)	99					102	92
100	Jellies, preserves, pickles, etc.	118	1		2		201	171
		226	1		2		$611	$516

Respectfully submitted.

B. PULLEN,
Superintendent Class H, Section 2.

CLASS I—FINE ARTS.

REPORT OF JOHN P. REYNONDS, *Superintendent.*

To the State Board of Agriculture:

The general exhibition in this department was creditable. In oil-painting and water-colors, it was quite deficient in quality, and sculpture was not represented at all.

In a temporary exhibition of only one week's duration, and in quarters which are not in any respect suitable, as well as being unsafe, it is not reasonable to expect a display in either branch of fine art which could be regarded as really meritorious if judged by any correct standard. Neither artists of reputation nor owners of fine paintings are willing, or should be asked, to take the chances of exposing their pictures in such quarters as we have been able to give them. Nevertheless, such exhibitions as we have been able to draw out have excited much interest among the average fair-goers, and if they have not done much good on the score of promoting and educating correct taste, have done no harm.

In liberal arts the collection was large and attractive, the hall being constantly well filled with visitors.

Lot	Articles.	Number of entries	Silver Medals.		Diplomas.		Cash Prem's.	
			Number offered	Number awarded	Number offered	Number awarded	Amount offered	Amount paid
101	Fine arts	44	14	8	14	7	$45	$45
102	Musical instruments	10	6	3	6	1		
103	Printing, engraving, etc	31	12	8	10	1		
104	Wax, feather, hair work, etc	83	2	3	1		46	46
		168	34	22	31	8	$91	$91

Respectfully submitted.

JOHN P. REYNODDS,
Superintendent Class I.

CLASS K—TEXTILE FABRICS.

REPORT OF E. H. BISHOP, *Superintendent.*

To the State Baard of Agriculture:

The exhibit made in this department at the last State Fair has never been surpassed in point of skill in execution and excellence of taste manifested in the various pieces of artistic work, although falling slightly below that of 1879 in number of entries.

The number of articles of new designs and styles of work presented which were obliged to be shown as miscellaneous entries, gave evidence of a spirit of progress and enterprise upon the part of the lady patrons of the Fair not anticipated, and at the same time established the fact of the necessity of adding to our list such new articles and styles of work as from year to year become favorites with exhibiters, in order to meet the demands of the times, and encourage all who may wish to contribute to the success of this department. Such additions as were suggested by the late exhibition will be recommended, when the consideration of a premium list comes up.

The following table gives the number of entries, as well as the amount of premiums offered and paid at the last Fair:

Lot.	Articles.	Number of entries.	Diplomas.		Cash Premiums.	
			Number offered.	Number awarded.	Amount offered.	Amount paid.
105	Mill fabrics, etc.	2	13	1		
106	Household fabrics	103			$105	$83
107	Hand-sewing	56			43	83
108	Ornamental needlework	296			176	175
109	Fancy work	230			83	82
110	Needlework by girl under 13 years old	173			89	83
111	Quilts and needlework	89			69	57
	Total	949	13	1	$565	$523

Respectfully submitted.

E. H. BISHOP,
Superintendent Class K.

CLASS L—NATURAL HISTORY.

REPORT OF JOHN P. REYNOLDS, *Superintendent.*

To the Sta'e Board of Agriculture:

In the department of Natural History (Class L) the display, as a whole, was superior to that of 1879, particularly in the matters of classification, naming of species and interesting variety.

The number of entries was 22. The amount offered in premiums was all awarded. It is very difficult, in fact impracticable, to induce the owners of the best collections to exhibit them at our Fairs, owing to the delicacy of many specimens, and the danger of loss by handling and transportation. The display usually made in this department commands some attention from visitors, but it must always be comparatively insignificant in a city like this, where really fine collections, public and private, may be so easily seen and studied by those having an interest in Natural History.

Lot.	Articles.	Number of entries.	Amount premiums offered.	Amount premiums paid.
112	Taxidermy, Minerology and Conchology	13	$160	$160
113	Entomology, etc	9	75	75
	Total	22	$235	$235

Respectfully submitted.

JOHN P. REYNOLDS,
Superintendent Class L.

CLASS M—SPEED.

REPORT OF D. B. GILLHAM, *Superintendent.*

To the State Board of Agriculture:

The Speed Department of the late State Fair, while it attracted many visitors who would not otherwise have attended the Fair, largely increased the work and anxiety of all persons connected therewith.

It was evident, even previous to the time of making entries, that the classification of premiums did not meet the requirement of breeders of running and trotting horses, who strongly urged, by letter and by personal appeal, the privilege of showing the speed of their two, three, four and five-year old trotters and runners in rings where only animals of the same age should compete—with a free-for all ring, which, like sweepstakes rings in the live stock classes, would, as a final test, permit all ages to compete, respectively, either as runners or trotters.

The Board, during the week of the Fair, favorably considered some of the recommendations of breeders, and provided purses for two and three-year old runners, and for three-year old trotters. These rings were filled with youngsters, whose performances were creditable and afforded much greater satisfaction to visitors than the rings filled with professional track-horses, whose drivers were generally adepts in the jockey's art, and frequently delayed the start until patience ceased to be a virtue.

The classification of speed purses, as published in the premium list, did not confine the entries to sound breeding animals, that might be of great benefit in improving the quality of the riding and driving horses of the State, but permitted blind, and horses of every description, to compete, without any qualifications as to soundness or future usefulness in perpetuating their qualities.

The Illinois State Board of Agriculture has made an enviable record in the efforts put forth to improve the quality of the various breeds of farm animals, by offering liberal premiums at the State Fair for more than a quarter of a century, and it is questionable whether the offering of premiums in the speed class to other than sound breeding animals is in keeping with the established policy of the Board.

The premiums were offered as purses, the entry fee going into the treasury of the Board, making the small amounts offered hardly sufficient to induce horsemen to fill the various rings, and requiring a much greater outlay to the Board, in the way of premiums without any corresponding benefit, than if the arrangement had been made for stake races for $100 each.

The programme of speed advertised for Saturday, although attractive, and providing for a number of tests, both for running and trotting horses, did not induce a sufficient number of persons to attend to justify the expenses incurred for premiums, etc. There were no expenses incurred in the management of the speed department, as no assistant was employed and the judges cheerfully performed their duties, to the entire satisfaction of all concerned, without compensation.

The number of entries, amount of premiums offered and paid for speed are as follows. From the amount paid, $810 should be deducted for entry fees received:

Lot	Race.	Number of entries	Amount premiums offered	Amount premiums paid
114	Trotting race—horses that have not beaten 2:40	6	$200	$200
114	Trotting race—horses that have not beaten 2:30	5	200	290
114	Running race—open to all ages	3	200	180
114	Trotting race—horses that have not beaten 3 min	5	200	200
114	Free-for-all trot	4	300	300
114	Running race—open to all ages	.....	100	.....
114	Pacing race—free-for-all	5	200	200
114	Running race—for 2-year olds, ½ mile dash	3	100	100
114	Running race—2-mile dash, open to all	3	200	200
114	Three-year old trot	3	200	200
114	Three-year old and under—single dash around the track	4	200	200
114	Half-mile dash—open to all ages, stake race	7	240	240
	Total	48	$2,340	$2,220

Respectfully submitted.

D. B. GILLHAM,
Superintendent Class M.

CLASS N—EDUCATION.

REPORT OF EMORY COBB, *Superintendent.*

To the State Board of Agriculture:

The exhibit in the Educational Department was very gratifying, showing an improvement in many respects over the previous year.

At the State Teachers' Association, held in this city during holiday week, committees were appointed to take into consideration the general subject of our exhibit, and to take steps to bring the same to the attention of all the counties of the State, through the County Superintendents of Public Schools, giving such information as may be desirable.

Hon. James P. Slade, State Superintendent of Public Instruction, and his assistant, W. L. Pillsbury, have rendered valuable assistance in the department during the past year, and deserve the thanks of this Board. I would recommend that the Board urge County Agricultural Boards to offer premiums to the pupils of the public schools of their respective counties.

Herewith please find statistics in detail, covering the exhibit:

Lot	Exhibit.	Number of entries	Diplomas. Number offered	Diplomas. Number awarded	Cash Prem's. Amount offered	Cash Prem's. Amount paid
115	High School exhibit, languages	5	4	3	$32	$21
115	" " " mathematics	6	2	2	16	16
115	" " " natural sciences	10	4	3	32	24
115	" " " sweepstakes	2	1	1	18	15
116	Graded School exhibit	66	8	8	64	64
116	" " " sweepstakes	5	1	1	18	18
117	Country School exhibit	330	10	9	80	63
117	" " " sweepstakes	41	1	1	18	18
118	Sweepstakes for all public schools	7	2	2	44	44
118	County Superintendent	10	1	1	.....	.....
		482	34	31	$322	$283

Respectfully submitted.

EMORY COBB,
Superintendent Class N.

AMPHITHEATRE AND SHOW RING.

REPORT OF D. E. BEATY, *Marshal of the Ring.*

To the State Board of Agriculture:

One of the principal attractions of the late Fair, and one that was highly appreciated by a very worthy and enterprising class of exhibiters of agricultural machinery as well as all in attendance, was the display of traction engines drawing farm implements in front of the ampitheatre. A number of road engines were exhibited, each drawing up and down the track long lines of agricultural machinery of various kinds, consisting of threshers, mowers and reapers, sulky plows, grain drills, corn cultivators, and other wheeled implements, as well as farm wagons, which were crowded with men and boys.

As a large proportion of the visitors in attendance at our Fairs remain but one day, and have no opportunity of seeing other than the stock exhibited on the day they attend, it is recommended that a grand cavalcade of horses, cattle, and engines drawing agricultural machinery, be had at two o'clock each day around the exhibition ring in front of the amphitheatre; said cavalcade to consist of premium animals and such other stock as owners may wish to exhibit, the cattle and horses to be placed in the procession in the order of their appearance in the premium list, under charge of the superintendents of their respective classes, the portable engines drawing machinery to follow the stock at proper distance.

The propriety of introducing speed rings in connection with our State Fairs, is a question upon which there is a diversity of opinion in the minds of the public. One of the strong objections to it is that it is difficult to preserve proper order and decorum in the crowd while the races are going on. I am happy to state that, in our experience the past year, there was no difficulty on this point.

Respectfully submitted,

D. E. BEATY,
Marshal of the Ring.

REPORT OF THE GENERAL SUPERINTENDENT.

To the Illinois State Board of Agriculture:

I have the honor to report that good order was preserved during the week of the Fair, and that the police force discharged their duties in a satisfactory manner.

The work of preserving good order on the Fair grounds, looking after the large number of suspicious characters who frequent such places, as well as to effectually guard the enclosure and prevent admission of crowds of roughs over and through fences, is one of such magnitude and responsibility as to require the entire time and attention of the General Superintendent of Grounds.

There is sufficient work in the way of purchases and construction required by the Superintendents of departments to occupy the entire time of a member of the Board during the week of the Fair, and this work is now performed by your General Superintendent, in addition to the other duties named.

I beg leave to again call the attention of the Board to a portion of my previous report, concerning which the experience of the late Fair confirms the advisability of the changes recommended, which are as follows:

"The magnitude of the State Fair and the increasing duties from year to year devolving upon the General Superintendent, lead me to make the suggestion that a portion of the labor of this office might very properly be performed by the Auditing Committee, so far at least as relates to the purchase of material and the employment of labor required in the preparation of the several departments for the Fair and Fat Stock Show. This suggestion is prompted as the result of the experience of the late Fair, during which the preservation of order and the enforcement of proper police regulation so thoroughly absorbed the time and attention of your Superintendent as to make it almost impossible, with any degree of satisfaction, to discharge the numerous, and at times very pressing duties of the position. As the Auditing Committee have the examination and settlement of all claims for material and labor furnished in connection with the Fair and Fat Stock Show, it would, in the opinion of your Superintendent, greatly simplify and expedite the business of the Board to empower the Auditing Committee to make the contracts that they are now required, by existing rules, to approve and audit before payment.

Respectfully submitted,

M. T. STOOKEY,
General Superintendent.

FORAGE DEPARTMENT.

REPORT OF J. L. MOORE, *Superintendent.*

To the State Board of Agriculture:

There was a sufficient number of stalls provided to accommodate exhibiters.

The expense incurred by the Board in fitting up these stalls was about $50.00.

Hay was furnished exhibiters by R. F. Day & Co., of Springfield, with no expense to the Board.

The local committee failed to provide the quantity of straw called for in the specifications, and about 42 tons more purchased by the Board at an expense of $169.00.

Abundant water was provided at convenient points on the grounds.

Respectfully submitted.

J. L. MOORE,
Superintendent Forage and Stalls.

Communication of E. Raines, of Clinton, Ill., with testimonials, were read, petitioning the Board for the scholarship offered by the American Veterinary College, of New York, to such person as the Illinois State Board of Agriculture might designate.

On motion of Mr. Gillham,

The Secretary was instructed to correspond with the American Veterinary College and ascertain if the scholarship was still at the disposal of the Board, and, if so, tender the same to Mr. Raines, of Clinton, with the understanding that the Board assume no responsibilities in connection therewith.

Communication of George Fishback, of Carlinville, was read, asking the Board for consideration, on the ground that Chester White hogs were shown at the late Fair previous to the date advertised in the programme, and that his hogs, although late in arriving, reached the Fair Grounds previous to the time published for showing this breed of Swine.

On motion of Mr. Washburn,

Action was postponed until the arrival of Mr. Voorhies, Superintendent Class D, Swine.

Communication of Joseph Watts, of Ottawa, Ill., was read, asking for $26.25, the expense incurred in attending the State Fair, with Southdown sheep, which were not shown, except in sweepstakes rings, owing to delay in reaching the Fair Ground, and showing Southdowns previous to the date advertised in the programme.

On motion of Mr. Vittum,

The further consideration of the claim was postponed until 10 o'clock A. M. to-morrow.

Claim of the Springfield Water Works for $15.00 for services of attendant on water pipes during the week of the State Fair, was presented.

On motion of Mr. Gillham,

The bill was referred to committee on adjustment of claims of the Board against the citizens' committee of Springfield.

On motion of Mr. Haskell,

The Board adjourned to 7:30 o'clock P. M.

EVENING SESSION.

Board met, pursuant to adjournment.

President Scott in the chair.

Present—President Scott, ex-President Gillham, Vice-Presidents Ellsworth, Emery, Reynolds, Haskell, Moore, Dysart, Snoad, Cobb, Vittum, Beaty, Smith, Pullen, Stookey and Washburn.

The special order being the consideration of the report of the committee on permanent location of the State Fair, and coming up.

Mr. Washburn introduced the following resolution, and moved its adoption:

Resolved, That in view of the past experience of this Board in the decreased attendance and patronage of the State Fair at the second year of its location at one point, and especially in view of the greatly decreased attendance and patronage at the last State Fair (1880), compared with that of 1879, the State Board of Agriculture deem it inexpedient at present to take any further steps towards locating the State Fair for a longer time than two years.

The resolution was discussed until a late hour, when permission was asked by Mr. Washburn to withdraw the resolution; which request, on motion of Mr. Smith, was granted.

On motion of Mr. Cobb,

The Board adjourned to 9:30 o'clock, A. M., to-morrow.

WEDNESDAY, JANUARY 5, 1881—9 O'CLOCK, A. M.

Board met, pursuant to adjournment.

President Scott in the chair.

Present—President Scott, ex-President Gillham, Vice-Presidents Ellsworth, Emery, Reynolds, Haskell, Moore, Dysart, Snoad, Cobb, Vittum, Beaty, Smith, Pullen, Stookey and Washburn.

Minutes of yesterday's sessions read, and, on motion of Mr. Gillham, adopted.

The following reports were received and adopted:

REPORT OF COMMITTEE ON ROAD MAKING.

To the State Board of Agriculture:

Your committee to whom was referred the question of awarding a premium of $100 offered by the Board, "To the Township that shall grade, ditch and complete the greatest number of miles of earth road during the year 1880," find but one entry for such premium. This is made by commissioners of Kane county, and while the committee highly commend the action of said commissioners in grading and graveling so many miles of roadway, we find that the premium is not offered for graveled roadways, and that the specifications in the application are not sufficient to enable the committee to arrive at material facts in the case for making earth roads. We also find the expense of grading the road under consideration to be a fraction over 76 cents per rod, while reports heretofore made to this Board show similar roadways to have been graded at 10 to 16 cents per rod.

Your committee therefore report adversely to the award of the premium offered by the Board.

C. SNOAD,
M. T. STOOKEY,
D. E. BEATY,
Committee.

REPORT OF COMMITTEE ON FARM DRAINAGE.

To the State Board of Agriculture:

Your committee appointed to examine and report upon the entries for the premium offered by the Board for the "best tile-drained farm, of not less than 80 acres," will state that only two entries were made for said premium—John McGinnis, of Dawson, Sangamon county, and J. L. Shorthoes, of Danvers, McLean county.

The entry of Mr. Shorthoes cannot be said to fully comply with the requirements of the Board, as something less than 70 acres of the 80 acres described are laid in tile, as shown in the diagram. On this, 14,888 feet of tile, mostly 3-inch, are placed at an average depth of three feet, in lines running lengthwise of the tract, at about 9 rods apart—the whole costing, for material and labor, $473 90, or 52½ cents per rod.

The entry of Mr. McGinnis embraces a tract of 89 7/100 acres, and contains the full number of acres required in the specifications. The system adopted is very complete; 22,211 feet of tile are used on this work, which are laid at an average depth of a little more than 3 6/10 feet, and costing, for the entire improvement, $712.64, or 52 9/10 cents per rod. The size of the tile used varies from 1½ inches to 8 inches in diameter—2, 2½, 3 and 5 inch being the principal sizes.

The committee, if disposed to waive the question of acreage in the entry of Mr. Shorthoes, find that the entry of Mr. McGinnis shows a more thorough system of drainage by the various sizes of tile used and the greater depth at which they are laid, and, these facts considered, at less cost per rod. We therefore recommend that the premium be awarded to Mr. McGinnis, whose statement and diagram accompany his application.

D. B. GILLHAM,
D. W. VITTUM, JR.,
J. L. MOORE,
Committee.

STATEMENT OF JOHN McGINNIS.

To the Secretary of the State Board of Agriculture:

In making entry for the premium offered for the best tile-drained farm, I beg leave to submit the following diagram and statement, as required: [See following page.]

The farm contains 89.7 acres; its southeast corner is three-fourths of a mile west of the depot in the town of Dawson, and more particularly described as the west part of lot 2 of the northwest fractional quarter of section 7, township 16 north, range 3 west of the third principal meridian; and also the north part of the west part of lot 2 of the southwest fractional quarter of the aforesaid section.

The soil is black prairie, and quite deep, and the subsoil yellow and blue clay.

The diagram shows the location and size of drain, tile used, and the location of the open ditches; the number of dots indicating the diameter of tile in inches, except the 2½-inch tile is indicated by two dots and the 1½-inch by one dot. The parallel lines = show the main open ditches, and line marked thus — the catch-water drain.

The tile drains have grades from .25 (twenty-five hundredths) to .84 (eighty-four hundredths) of a foot-fall per 100 feet; the average depth is 3.633 feet, and cost 26.185 cents per rod, for engineering, digging and filling (combined); i. e., less than .73 (seventy-three hundredths) of a cent per rod for each tenth a foot in depth.

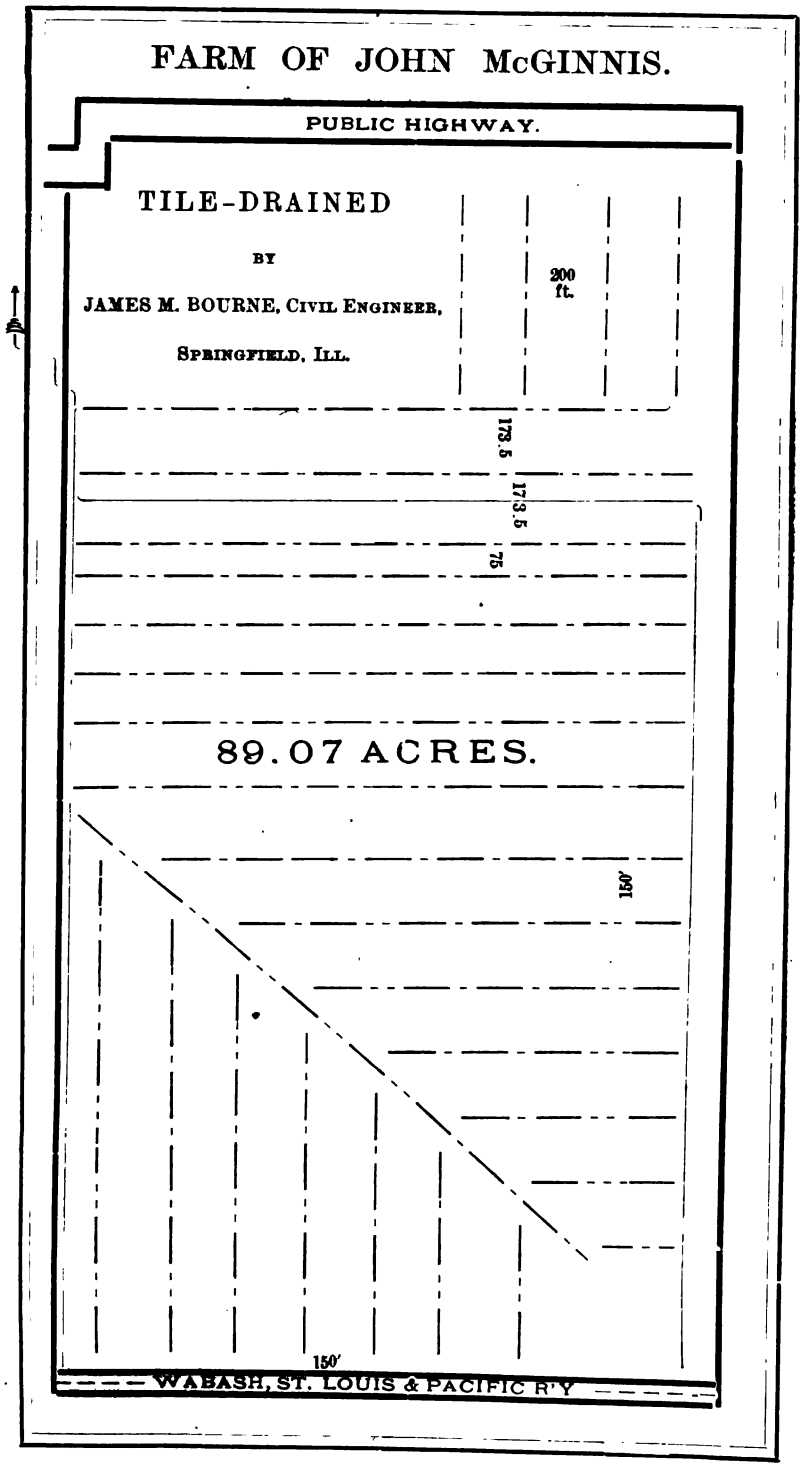
The following tile were used:

1½ inch	800 at $8 per 1000
2 inch	1,100 at $9 per 1000
2½ inch	16,570 at $6, $9 and $10 per 1000
3 inch	1,580 at $9 and $11 per 1000
4 inch	412 at $14 and $16 per 1000
5 inch	1,112 at $23 and $25 per 1000
6 inch	212 at $34 and $36 per 1000
7 inch	212 at $48 per 1000
8 inch	212 $60 per 1000

Total number tile 22,211; total cost	$230 66
Hauling tile by rail and wagon	79 50
Digging, laying, filling and engineering	352 48
Open-ditch	50 00
Aggregate cost of improvement	$712 64

I was unable, in the commencement of the work, to get tile of less diameter than 2½ inches for such places as Mr. James M. Bourne, civil engineer, had directed that 1½ and 2-inch tile should be used; but before completing the improvement I obtained a few tiles of those sizes, and very much regret that I could not get the sizes directed for all places. Tile were purchased of three manufacturing establishments; some were hauled by rail to depot at Dawson, and thence by wagon to the farm, and others hauled

FARM OF JOHN McGINNIS.



direct by wagon from tile yard to farm. As several sizes were hauled in the same load, it is almost or quite impossible to give the cost of the several sizes of tile per 1000 at the farm; for these reasons I give cost at the factory.

JOHN McGINNIS.

December 31, 1881.

The special order being the consideration of the claim of Mr. Watts, of Ottawa, for $26.65, and coming up,

Mr. Snoad moved that the claim of Mr. Watts be allowed.

Motion lost.

On motion of Mr. Gillham,

The Board adjourned to 2 o'clock P. M.

AFTERNOON SESSION.

Board met, pursuant to adjournment.

President Scott in the chair.

Present—President Scott, Ex-President Gillham, Vice-Presidents Ellsworth, Emery, Reynolds, Haskell, Moore, Dysart, Snoad, Cobb, Vittum, Beaty, Smith, Pullen, Stookey and Washburn.

The following committee reports were received and adopted:

REPORT OF COMMITTEE ON DISPLAYS OF GRAINS, SEEDS, VEGETABLES, DAIRY PRODUCTS, ETC.

To the State Board of Agriculture:

Your committee on "displays of Grains, Seeds, Vegetables, Dairy Products, etc., by County, Union or District Agricultural Association or Club," respectfully report that they have examined the entries in this class, and find two very fair collections, both in quantity as well as variety and quality—one by the Fairbury Agricultural Society, and the other by the Pleasant Hill Agricultural Society.

The first named, from Livingston county, is not equal to the latter in variety, but is very creditable and interesting. The latter, from Sangamon county, is very large and embraces about all the cereals, seeds and vegetables that are in season, or could well be preserved until this time.

It is therefore recommended that the first premium be awarded to the Pleasant Hill Agricultural Society, and the second premium to the Fairbury Agricultural Society.

Your committee feel it to be their duty to recommend, also, that the exhibitions of this character at the Winter meetings be discontinued, except that, in case suitable additional room in this building can be secured to the use and control of the Board, a liberal list of premiums be offered on fruits, flowers and plants, wines and cider, to be awarded at the alternate Winter meetings of the Board, commencing in January, 1883.

GEO. S. HASKELL,
JOHN P. REYNOLDS,
Committee.

REPORT OF COMMITTEE ON HORTICULTURAL DISPLAY.

To the State Board of Agriculture:

Your committee appointed to pass upon "the best and largest display of Green Fruits Wines, Cider, Vinegar, etc., etc., by County, Union, District or Horticultural Association or Club, or any individual," would report only two entries, and that these were large displays and very creditable. The exhibit of the Warsaw Horticultural Society contained one hundred and sixty-seven varieties, and that made by A. C. Hammond, of Warsaw, ninety-seven varieties. Awards were made as follows:

Warsaw Horticultural Society, first premium	$75 00
A. C. Hammond, Warsaw, second premium	50 00

Respectfully submitted.

B. PULLEN,
H. D. EMERY,
LEWIS ELLSWORTH,
Committee.

REPORT OF COMMITTEE ON MISCELLANEOUS AWARDS.

To the State Board of Agriculture:

The undersigned would beg leave to report that they have examined the entry books, and duly considered the recommendations of awarding committees on the miscellaneous entries made at the late State Fair, and submit the following list of recommendations which the committee approve and report to the Board for confirmation.

Respectfully submitted.

W. M. SMITH,
D. E. BEATY,
SAMUEL DYSART.
Committee.

CLASS F—MECHANICS—Section 1.

J. M. EPLER, *Superintendent.*

LOT 82—HOUSEHOLD FURNITURE.

Adjustable Table:
Albert Clisbee, Agt., St. Louis, Mo.....High commendation

Carpet Sweeper:
Hudson & House, Springfield.....Highest commendation

Folding Table:
R. F. Pouley, Geneva.....High commendation

LOT 83—MANUFACTURES OF VARIOUS KINDS.

Yeast Powder:
G. W. Potter, St. Louis, Mo.....High commendation

Window Screen:
J. E. Ratcliffe, Dawson.....High commendation

Manufactured Hair Goods:
Miss H. G. Griffith, Springfield.....Highest commendation

Wood Chain:
Andrew Ohlson.....High commendation

Combined Collar and Harness:
Metallic Collar Co., Rochelle.....High commendation

CLASS F—MECHANICS—Section 2.

W. M. SMITH, *Superintendent.*

LOT 87—IMPLEMENTS, VEHICLES, ETC.

Buggy Top:
C. Fockler & Bro., Dubuque, Ia.....Diploma

CLASS G—FARM PRODUCTS.

SAMUEL DOUGLAS, *Superintendent.*

LOT 89—GRAINS AND SEEDS.

Bale of Imported English Hay:
E. Dillon & Co., Normal.....Highest commendation

LOT 90—VEGETABLES.

Rice Corn:
Henry Cumbleworth, Springfield.....Highest commendation

LOT 92—BREAD, CAKES, ETC.

Display of Baking Powder:
D. C. Brown, Springfield, Ill.....Highest commendation

CLASS I—FINE ARTS.

JOHN P. REYNOLDS, *Superintendent.*

LOT 103—PRINTING, ENGRAVING, ETC.

Book-keeping by Student:
S. Bogardus, Springfield.....Silver meda

Display Architectural Designs:
S. A. Bullard, Springfield.....Diploma

Plain Penmanship:
S. Bogardus, Springfield.....Silver medal

Actual Business Practice:
S. Bogardus, Springfield.....Diploma

Exhibit Business Writing by Student of Business College:
S. Bogardus, Springfield.....Silver meda

Group Practical Landscape Plans:
A. N. Carpenter, Galesburg.....Diploma

Exhibit Students' Work in Book-keeping:
Business College, Jacksonville.....Diploma

Exhibit Penmanship by Students:
Business College, Jacksonville.....Silver medal

LOT 104—WAX, FEATHER, HAIR WORK, ETC.

Picture Frame:
Mrs. G. A. Ballou, Springfield.....Diploma

CLASS K—TEXTILE FABRICS.

E. H. BISHOP, *Superintendent.*

LOT 105—MILL FABRICS, ETC.

Display of Furs:
C. Wolf, Springfield.....Commended

LOT 106—HOUSEHOLD FABRICS.

Pair Fancy Knitted Stockings:
Mrs. F. Roderick, Springfield.....High commendation

LOT 107—HAND SEWING.

Fine Shirt:
Mrs. E. Prim, Athens.....Commended

LOT 109—FANCY WORK.

Mantle Lambrequin:
Mrs. Wm. Hanna, Keokuk Junction.....High commendation

Embroidered Table Cover:
Mrs. Wm. Hanna, Keokuk Junction.....High commendation

CLASS L—NATURAL HISTORY.

JOHN P. REYNOLDS, *Superintendent.*

LOT 112—TAXIDERMY, ETC.

Artificial Stone:
E. H. Barrett, Minneapolis, Minn.....Diploma

CLASS N—EDUCATION.

EMORY COBB, *Superintendent.*

LOT 117—COUNTY SCHOOL EXHIBIT.

Special Exhibit of Wild Flowers of Knox County:
Miss Anna Jungstrum, Abingdon, Ill.....Diploma

County Exhibit:
J. E. Pillsbury, County Superintendent Peoria county.....Honorable mention
Miss Mary L. Carpenter, County Superintendent Winnebago Co..Honorable mention

Superintendents made reports of the Fat Stock Show as follows:

CLASS A—CATTLE.

REPORT OF SAMUEL DYSART, *Superintendent.*

To the State Board of Agriculture:

The show of Cattle at the late Fat Stock Show, while not as large in point of numbers as at the previous show, was of a much better quality; especially was this the case with the younger ages, which showed great development and ripeness for age.

The reports of the several committees are presented herewith and recommended for publication.

The committee men generally gave good satisfaction and their reports evince careful discrimination, and a thorough acquaintance with the points of excellence of the best quality of beef animals.

Respectfully submitted.

SAMUEL DYSART,
Superintendent Class A.

CLASS C—SHEEP.

REPORT OF D. W. VITTUM, JR., *Superintendent.*

To the State Board of Agriculture:

Aside from the inconveniences resulting from the severely cold weather which prevailed throughout the week, and the diminished attendance resulting therefrom, the Sheep Department of the late Fat Stock Show was highly satisfactory.

The entries of fine wool sheep were not so numerous, nor was the condition of those fine wool sheep shown so good as was desirable or seemed warranted by the importance of that branch of sheep husbandry.

The breeds more especially adapted for meat production were represented in their several varieties, and secured deserved commendation, both from visitors and jurymen.

So far as known, the decisions of the jurymen were accepted as generally correct, though sometimes resulting in disappointment to worthy exhibiters. Especially was this true of the ring for slaughtered animals. The wording of the Premium List, which seemed to preclude consideration of offal in determining the award, led to results by no means satisfactory to certain exhibiters. Something more than the value of carcass in proportion to live weight needs to be considered in determining what is the most profitable sheep for the feeder and breeder, as well as the butcher. The value of pelt and tallow—the more important in ratio to the size of the sheep—should somewhere have a place in such an estimate. It would seem desirable that the Board should reserve the privilege

of slaughtering some proportion of the premium animals, to be determined in such manner as may be deemed best. The value of lessons and deductions to breeders and feeders would be much enhanced by a comparison of comments and conclusions of judges, before slaughtering, with the facts disclosed by the scales when applied to the several parts of the carcass and offal. The principal obstacle will be found in the tempting prices offered by butchers for show animals, which, in the opinion of exhibiters, more than compensate for any result attainable in the slaughter ring. This, however, can be overcome by means within ready reach of the Board, and which will prove of mutual advantage to all parties interested.

For the details of weights, measurements, etc., reference is made to the report of the jurymen as noted in the entry-books.

Respectfully submitted.

D. W. VITTUM, JR.,
Superintendent Class C.

CLASS D—SWINE.

REPORT OF WM. VOORHIES, JR., *Superintendent.*

To the State Board of Agriculture:

The liberal amount of premiums offered in this class did not bring out as large a show of hogs as expected.

The new arrangement of premiums gave very general satisfaction, and the awards were made according to merit.

Respectfully submitted.

WM. VOORHIES,
Superintendent Class D.

CLASS E—POULTRY.

REPORT OF H. D. EMERY, *Superintendent.*

To the State Board of Agriculture:

As Superintendent of Class E at the Fat Stock Show of 1880, I beg leave to report a very creditable display in number, and a decided improvement in the quality of the exhibit over the previous year.

Especially noticeable and deserving of recognition was the exhibit of Mr. J. B. Root, of Norwood Park, consisting of 16 coops of fowls and chicks—not remarkable for condition, but for size and fine breeding condition.

Messrs. Scheidt and Davis, of Dyer, Ind., showed a fine lot of poultry, including Geese, Ducks, Fowls and Turkeys, all of which had been fed for the occasion and were good specimens. They took a good proportion of the premiums offered.

A remarkably large pair of Turkeys were sent by Mr. Frank Wilson, of Jackson, Mich., but not in condition to be considered fat.

Messrs. Bush and Blodgett, of Downers Grove, made the best display of live poultry and took several prizes for single birds.

There was no competition for Capons or for dead game.

From observation and conversation with breeders, it has occurred to me that a material change should be made in the classification and some additional premiums offered before this department will attract the attention it deserves. I will submit with this such a classification as I would suggest, leaving the amount of premiums to be fixed by the Board at its next meeting.

H. D. EMERY,
Superintendent Class E.

President Scott made the following report of conference with the Regent and Professor of Agriculture of the Illinois Industrial University, in reference to the preparation of an agricultural text book, for use in the public schools.

The report was received and, on motion of Mr. Gillham, action thereon was deferred until the next meeting of the Board.

SPECIAL REPORT OF THE PRESIDENT.

To the State Board of Agriculture:

At the last annual meeting of this Board, the committee on President's address reported as follows:

"On the subject of elementary education, relating to practical agriculture, and the introduction of a suitable text book into the public schools, with a view to induce and prepare pupils to pursue a complete course of study in the State Industrial University, we desire to suggest that the President, who resides in the immediate vicinity of our State University, be requested to bring the matter of preparing such a text book, and the whole question presented, to the attention of the Regent of that institution, and communicate the results of such conference to a future meeting of this Board."

In compliance with the above instructions, the matter was submitted to the Regent and Professor of Agriculture, who favorably considered the proposition, and deemed it practicable to have a suitable text book prepared for the use of pupils in common schools and for young farmers.

I would recommend that this Board, by resolution, request the Regent and Professor of Agriculture of the Illinois Industrial University, to prepare an agricultural text book for use in the country schools of the State.

Respectfully submitted.

JAS. R. SCOTT.

Application of the late McHenry County Agricultural Board for the State appropriation was read.

On motion of Mr. Cobb, action thereon was deferred until the next meeting of the Board.

Mr. Beaty asked for the consideration of the claim of Mr. Fishback.

On motion of Mr. Dysart,

The claim of Mr. Fishback was not allowed.

Mr. Gillham introduced the following resolutions, expressive of the esteem and appreciation entertained by the Board for the retiring members, which were adopted, on motion of Mr. Smith:

WHEREAS, We, as a body, are called upon to sever our official connections with three of our colleagues, who have been for years associated with us as co-laborers, and whose eminent services in advancing the work of the Board entitle them to the gratitude of the people of the State; therefore, be it

Resolved, That duly appreciating the earnest efforts of the retiring members, Hon. Samuel Douglas, Hon. M. T. Stookey and the Hon. J. M. Epler, in promoting the interests of the industrial classes of the State, we tender them our sincere thanks, and will ever hold them in kind remembrance.

Resolved, That the foregoing resolution be spread upon the journal, and a copy furnished each of the gentlemen named.

The Treasurer made the following reports for the past year:

TREASURER'S REPORTS.

STATE OF ILLINOIS

IN ACCOUNT WITH JOHN W. BUNN, TREASURER

Illinois State Board of Agriculture.

	CR.			
1880.				
January 7.	By unexpended balance Library account	$770 58		
	" " " Crop Report account	330 60		
	" " " Secretary's salary	100 00		
	" " " Museum account	1,194 52		
	" " " Curator's salary	300 00		
			$2,695 70	
July 1	By amount received from State account Fair premiums	$3,000 00		
	" amount received from State account salary Secretary	2,000 00		
	" amount received from State account salary clerk	1,000 00		
	" amount received from State account salary curator	600 00		
	" amount received from State account salary porter	600 00		
	" amount received from State account crop reports	1,000 00		
	" amount received from State account Museum	1,500 00		
	" amount received from State account office expenses	500 00		
	" amount received from State account Library	500 00		
			10,700 00	
July 1	By amount appropriated for county agricultural boards		7,200 00	$20,595 70
	DR.			
	To premium account Illinois State Fair	$3,000 00		
	" salary Secretary	2,000 00		
	" " clerk	1,000 00		
	" " curator	600 00		
	" " porter	600 00		
	" crop report	1,123 10		
	" Museum	2,524 20		
	" Library	381 27		
	" office expenses	500 00		
			$11,728 57	
	To unexpended appropriation Library account	$889 31		
	" " " Museum "	170 32		
	" " " Crop Rep. "	207 50		
	" " " salary Sec'y	100 00		
	" " " " curator	300 00		
			1,667 13	
	To each of the following 72 county agricultural boards, $100, viz: Adams, Boone, Brown, Bureau, Carroll, Cass, Champaign, Clark, Coles, Crawford, Cumberland, DeKalb, DeWitt, Douglas, DuPage, Edgar, Edwards, Fayette, Franklin, Fulton, Gallatin, Greene, Grundy, Hamilton, Hardin, Henderson, Henry, Iroquois, Jackson, Jasper, Jersey, JoDaviess, Kane, Kankakee, Kendall, Knox, LaSalle, Lake, Lawrence, Livingston, Logan, Macon, Macoupin, Massac, McDonough, McLean, Menard, Mercer, Montgomery, Morgan, Moultrie, Ogle, Peoria, Perry, Platt, Pike, Pope, Putnam, Richland, Schuyler, Shelby, Stark, Tazewell, Union, Wabash, Warren, Wayne, White, Whiteside, Will, Williamson and Winnebago			$20,595 70

JOHN W. BUNN, Treasurer.

Springfield, Illinois, January 5, 1881.

ILLINOIS STATE BOARD OF AGRICULTURE,

IN ACCOUNT WITH JOHN W. BUNN, TREASURER.

STATE FAIR.

Cr.

1880 January 8.	By amount balance		$2,974 39	
	" " received from State for premiums		3,000 00	
October 2.	" " " " Springfield Fair		19,053 37	
	" " " " " committee		200 00	
	" " " " Samuel Jewett, premium returned		10 00	
				$25,237 76

Dr.

Dec. 31	To hotel bills, board	$681 45		
	" traveling expenses, board	502 35		
	" postage	306 12		
	" office expenses—express, etc	66 67		
	" printing and stationery	1,665 93		
	" advertising	340 68		
	" music	193 00		
	" livery	394 50		
	" Assistant Superintendent	601 60		
	" police	736 25		
	" Clerks Secretary	72 00		
	" " Treasurer	162 00		
	" " Auditor	149 87		
	" gatemen	256 50		
	" lumber and labor, Fair 1879	525 45		
	" " " " " 1880	516 23		
	" use of engine and fuel	511 25		
	" ice and water barrels	174 27		
	" straw hauling and labor	271 50		
	" sprinkling and hauling	217 00		
	" use of furniture at Fair	40 58		
	" meals on Fair Grounds	892 63		
	" blankets	21 00		
	" sundry expenses Fair	54 67		
	" grains and seed	14 80		
	" clerk hire	200 00		
	" Treasurer's commission	503 62		
			$10,071 82	
	To premiums paid—Class A—Cattle	$3,060 00		
	Class B—Horses	3,451 00		
	Class C—Sheep	1,265 00		
	Class D—Swine	1,425 00		
	Class E—Poultry	447 00		
	Class F—Mechanics	160 00		
	Class G—Farm Products	611 00		
	Class H—Horticulture	1,022 00		
	Class I—Fine Arts	91 00		
	Class K—Textile Fabrics	523 00		
	Class L—Natural History	235 00		
	Class M—Speed	2,220 00		
	Class N—Education	283 00		
	Silver medals, etc	314 76		
	Premiums Winter meeting	325 00		
			15,432 76	

Cr.

	By deficit		.....	266 82
			$25,504 58	$25,504 58

JOHN W. BUNN, Treasurer.

SPRINGFIELD, ILLINOIS, January 5, 1881.

ILLINOIS STATE BOARD OF AGRICULTURE,

IN ACCOUNT WITH JOHN W. BUNN, TREASURER.

FAT STOCK SHOW.

Cr.

1880. Nov. 20....	By amount received, tickets, etc	$2,598 39	
	" " " subscriptions	3,295 00	
	" " " J. H. Graves, premium returned	25 00	
			$5,918 39

Dr.

To traveling expenses of the Board		$409 33	
" hotel bills, Board		486 30	
" postage		88 40	
" constructing stalls, pens, etc		563 90	
" slaughtering animals, 1879 and 1880		107 75	
" rent Exposition Building		198 44	
" lighting Exposition Building		259 00	
" printing and stationery		764 64	
" music		300 00	
" committeemen		224 80	
" advertising		141 70	
" police		130 40	
" Auditor's clerks		127 25	
" Treasurer's clerks		80 00	
" Assistant Superintendents		49 00	
" labor		36 75	
" straw and sawdust		45 50	
" Veterinarian		15 00	
" sundries		17 65	
To premiums paid—Class A—Cattle	$1,455 00		
Class C—Sheep	540 00		
Class D—Swine	365 00		
Class E—Poultry	60 00		
Previous year	24 51		
Premium ribbon	6 25		
		2,450 76	

Cr.

By deficit			578 18
		$6,496 57	$6,496 57

JOHN W. BUNN, Treasurer.

SPRINGFIELD, ILL., January 5, 1881.

On motion of Mr. Reynolds,

The Treasurer's reports were received and referred to the finance committee.

President Scott made the following report as chairman of the committee appointed to investigate and report the amount of expense incurred by the Board on account of the failure of the local committee to complete arrangements for the Fair according to the specifications of requirements:

REPORT OF COMMITTEE.

To the State Board of Agriculture:

Your committee to whom was referred the question of examination as to the amount paid out by this Board for fitting up grounds and buildings on the Sangamon County Fair Grounds to enable the Board to hold the Fairs for 1879 and 1880, would report that, as shown by the accompanying statement, the gross amount of $2,300 was expended by this Board, which should have been furnished by the local committee as per specifications of requirements.

JAS. R. SCOTT,
M. T. STOOKEY,
W. M. SMITH,
Committee.

On motion of Mr. Reynolds,

The report was received and referred to the committee on finance, with instructions to notify the local committee of the deficit and request a personal interview with the bondsmen and secure an early settlement of the claim.

President Scott, as *ex-officio* member of the Board of Trustees of the Illinois Industrial University, made a report of agricultural experiments made by the University, and recommended its publication in the annual report of the department:

To the State Board of Agriculture:

The President of this Board is made, by law, a member, *ex-officio*, of the Board of Trustees of the Illinois Industrial University.

It is a new departure for your President to make a report of his duties in connection with the University as Representative of the Illinois State Board of Agriculture, but the advantages to the farmers of the State, which would likely result from the publication in our annual report of some of the many practical and successful experiments made by the School of Agriculture, prompt me to submit a report (see Appendix) of some of the results obtained, which are recommended for publication.

JAS. R. SCOTT.

On motion of Mr. Reynolds,

The report was received and referred to the editing committee (see report in Appendix).

Ex-President Gillham presented a paper on the Agriculture of Illinois for 1880, which, on motion of Mr. Beaty, was received and referred to the editing committee:

LETTER OF TRANSMITTAL.

To the State Board of Agriculture:

In compliance with existing instructions of the Board, I have the honor to submit herewith, for publication in the 18th Annual Report of the Board, a paper on the Agriculture of Illinois for 1880.

Respectfully submitted. D. B. GILLHAM.

On motion of Mr. Reynolds,

The Secretary was instructed to transmit to the chairman of the committee of agriculture of the House of Representatives and the Senate of this State, now in session, a copy of the resolutions adopted by the Board in reference to the sale of adulterated articles as butter.

The auditing committee made the following annual report, which was received, and, on motion of Mr. Dysart, adopted:

REPORT OF AUDITING COMMITTEE.

To the Illinois State Board of Agriculture:

The following exhibit of the receipts and disbursements for the past year, of the Fair and Fat Stock Show, is presented for the information of the Board:

	No.	Total No.	Amount.	Total.
STATE FAIR.				
Cr.				
By State appropriation account of premiums				$3,000 00
PAYING ADMISSIONS.				
By season and coupon tickets and checks	1,135		$1,702 50	
" single admission tickets, adults	24,837		12,418 50	
" single admission tickets, children	2,478		719 50	
" carriage tickets	1,671		833 50	
		30,521		15,674 00
NON-PAYING ADMISSIONS.				
Complimentaries	2,704			
Complimentaries, carriages	390			
Railroad employés, 606; laborers, 540	1,110			
Helpers, booths, stands, etc	1,059			
Crop reporters, press, officers county Fairs	254			
		5,517		
Total number of admissions		36,038		
BOOTHS AND PRIVILEGES, ETC.				
By booths, permits, etc				3,379 37
" local committee account, engine				200 00
" Samuel Jewett, premium returned				10 00
Amount received from Springfield Fair				$22,263 37

Dr.

TO EXPENSES OF DEPARTMENTS.

Class.	Assist'nt Superintendents or cl'ks	Trav'l'ng expenses	Hotel	Livery	Meals at Fair Grounds	Total
A—Cattle	$15 00	$25 30	$33 00		$64 33	$137 63
B—Horses	45 00	18 15	33 75	$90 00	60 33	187 23
C—Sheep	51 00	14 25	28 50		30 00	123 75
D—Swine	21 00	4 00	21 00	20 00	43 33	109 33
E—Poultry	22 00	13 10	35 25		27 33	97 68
F—Mechanics—Section 1	32 25	34 0	11 25		31 33	108 83
F—Mechanics—Section 2	64 50	23 25	32 00	50 00	19 67	189 42
G—Farm products	54 00	16 30	33 50		39 67	143 47
H—Horticulture—Section 1	12 00	23 75	41 25	2 00	21 33	100 33
H—Horticulture—Section 2	29 60		38 05		20 67	88 32
I—Fine Arts	39 00		7 25		12 00	58 25
K—Textile Fabrics	66 00	11 00	35 00		33 33	145 33
L—Natural History	22 50		9 75			32 25
M—Speed		33 40	12 00		4 67	50 07
N—Education	15 00		16 50		4 00	35 50
Marshal of Ring	33 00	17 50	33 00	48 00	21 66	153 16
General Superintendent	52 75	25 00	27 25	64 50	244 00	413 50
Auditing Committee	149 87	103 35	90 75	28 00	111 99	483 96
President's office		85 00	61 90	10 00	27 00	183 90
Treasurer's office	162 00				7 33	169 33
Secretary's office	72 00	21 50	5 00		30 66	129 16
Reception committee			6 75	100 00	26 33	133 08
Committee of arrangements			16 00		11 67	27 67
Forage department	27 00	33 50	52 75	42 00		155 25
Total	$985 47	$502 35	$681 45	$394 50	$892 63	$3,456 40

AUDITOR'S REPORT—Continued.

STATE FAIR EXPENSES.

To postage	$306 12	
" office expenses, express, etc	66 67	
" printing and stationery	1,665 93	
" advertising	340 68	
" music	193 00	
" police	736 25	
" gatemen	256 50	
" lumber and labor, Fair 1879	525 45	
" lumber and labor, Fair 1880	516 23	
" use of engine and fuel	511 25	
" ice and water barrels	174 27	
" straw, hauling and labor	271 50	
" sprinkling and hauling	217 00	
" use furniture at Fair	40 58	
" blankets	21 00	
" sundry expenses Fair	54 67	
" grains and seed	14 80	
" clerk hire	200 00	
" Treasurer's commissions	503 62	
" premiums	15,432 76	
Cr.		
By deficit	.....	$3,241 21
	$25,504 58	$25,504 58

FAT STOCK SHOW.

Cr.		
By amount received for sale tickets	$2,598 39	
" " " for subscriptions	3,295 00	
" " " J. H. Graves, premium returned	25 00	
		$5,918 39
Dr.		
To postage	$88 40	
" constructing stalls and pens	563 90	
" slaughtering animals 1879 and 1880	107 75	
" rent Exposition Building	198 44	
" lighting Exposition Building	259 00	
" printing and stationery	764 64	
" music	300 00	
" advertising	141 70	
" police	130 40	
" labor	36 75	
" straw and sawdust	45 50	
" veterinarian	15 00	
" sundries	17 65	
" premiums	2,450 76	

EXPENSES DEPARTMENTS, FAT STOCK SHOW.

Class.	Assistant superintendents and clerks	Awarding committees	Traveling expenses	Hotel	Total
A—Cattle		$83 60	$54 50	$31 50	$233 00
B—Horses			8 80	11 25	20 05
C—Sheep	$28 00	77 80	22 35	29 75	157 90
D—Swine	12 00	63 40		18 00	30 00
E—Poultry	9 00		15 25		24 25
F—Mechanics				3 75	3 75
Marshal of Ring			9 00	19 25	28 25
General Superintendent			6 50	8 25	14 75
Auditing Committee	127 25		53 53	45 00	225 78
Secretary's office				110 50	110 50
Treasurer's office	80 00				80 00
President's office			60 00	20 25	80 25
Forage department			52 80	52 80	105 60

AUDITOR'S REPORT—Continued.

Class.	Assistant superintendents and clerks	Awarding committees	Traveling expenses	Hotel	Total		
Committee of Arrangements			$122 60	$119 50	$242 10		
Vice-President, 15th district			4 00	4 50	8 50		
" " 4th "				2 25	2 25		
" " 8th "				9 75	9 35		
	$256 25	$224 80	$409 33	$486 30	$1376 78	$1,376 68	
Cr.							
By balance							$578 15
						$6,496 57	$6,496 57

ILLINOIS STATE FAIR.

EXPENSES OF DEPARTMENTS FOR THE PAST THREE YEARS.

	1878	1879	1880
Class A—Cattle	$71 53	$189 62	$137 63
B—Horses	139 79	342 93	187 23
C—Sheep	83 70	115 42	123 75
D—Swine	113 20	120 07	109 33
E—Poultry	61 31	92 15	97 68
F—Mechanics, section 1	53 67	115 00	108 83
F—Mechanics, section 2	143 83	206 58	189 42
G—Farm products	53 58	132 30	143 67
H—Horticulture, section 1	85 58	178 81	100 33
H—Horticulture, section 2	70 00	143 10	88 32
I—Fine Arts	88 00	85 30	58 25
K—Textile Fabrics	141 00	206 00	145 33
L—Natural History		53 25	32 25
M—Speed			50 07
N—Education			35 50
—Military		111 92	
Marshal of Ring	121 25	169 83	153 16
General Superintendent	311 83	370 50	413 50
Auditing Committee	314 22	527 32	483 96
Secretary's Office	215 80	230 71	129 16
Treasurer's Office	249 33	277 00	160 33
President's Office	30 33	185 17	183 90
Reception Committee	116 00	144 25	133 08
Veterinarian	74 00	94 45	
Committee of Arrangements	28 50	128 50	27 67
Forage Department	84 67	122 25	155 25

Respectfully submitted.

LEWIS ELLSWORTH,
CHARLES SNOW,
JAMES M. WASHBURN,
Auditing Committee.

The Finance Committee made the following report, which was read, and, on motion of Mr. Moore, adopted:

REPORT OF FINANCE COMMITTEE.

To the State Board of Agriculture:

The Finance Committee would beg leave to report that they have carefully examined the annual report of the Treasurer, John W. Bunn, for the year ending January 5, 1881, with approved vouchers on file in the office of the Department, which have been compared with the warrants of the Secretary and premium checks.

The vouchers agree with the report of the Treasurer, which we find correct and recommend for the approval of the Board.

Respectfully submitted.

EMORY COBB,
D. E. BEATY,
W. M. SMITH,
Committee.

On motion of Mr. Haskell,
The Board adjourned *sine die.*

J. R. SCOTT,
President.

S. D. FISHER,
Secretary.

Reports from County Agricultural Boards.

The financial reports of the County Agricultural Boards, and other societies in this State, holding fairs in 1880, are presented herewith.

The reports of the exhibitions in the various departments, and other matters usually published in connection with the reports, are tabulated, and follow the financial exhibits:

ADAMS COUNTY.

OFFICERS.—President, P. S. Judy, Coatsburg; Secretary, Richard Seaton, Camp Point; Treasurer, Moses C. Welsh, Camp Point.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$193 56
" deficit, last report		
" received 1880, fees—gate and entrance		3,914 25
" received 1880, booth rents and permits		435 84
" received 1880, sale shares of stock		40 00
" received 1880, State appropriation		100 00
" received 1880, other sources		165 38
" paid 1880, in premiums	$2,467 50	
" paid 1880, real estate, buildings, etc	895 19	
" paid 1880, current expenses other than premiums	878 26	
" remaining in treasury	608 08	
" deficit, including mortgage, etc		
Totals	$4,849 03	$4,849 03

BOONE COUNTY.

OFFICERS.—President, Richard Barnes, Belvidere; Vice-President, John Hannah, Belvidere; Secretary, A. E. Jenner, Belvidere; Treasurer, W. S. Jones, Belvidere; Marshal, A. T. Ames, Belvidere.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$38 84
" deficit, last report		
" received 1880, fees—gate and entrance		1,314 00
" received 1880, booth rents and permits		133 20
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		46 62
" paid 1880, in premiums	$516 40	
" paid 1880, real estate, buildings, etc	391 56	
" paid 1880, current expenses other than premiums	659 96	
" remaining in treasury	64 74	
" deficit, including mortgage, etc		
Totals	$1,632 66	$1,632 66

BROWN COUNTY.

OFFICERS.—President, W. H. Breckenridge, Versailles; Vice-President, F. W. Rottger, Mt. Sterling; Secretary, John J. McDonnald, Mt. Sterling; Treasurer, Simon Putnam, Mt. Sterling.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$1,876 90	
" received 1880, fees—gate and entrance		$2,431 66
" received 1880, booth rents and permits		291 50
" received 1880, sale shares of stock		1,569 55
" received 1880, State appropriation		100 00
" received 1880, other sources		100 00
" paid 1880, in premiums	$1,805 00	
" paid 1880, real estate, buildings, etc	1,684 35	
" paid 1880, current expenses other than premiums	892 67	
" remaining in treasury		
" deficit, including mortgage, etc		1,786 21
Totals	$6,258 92	$6,258 92

BUREAU COUNTY.

OFFICERS.—President, Elijah Dee, Princeton; Secretary, C. P. Bascom, Princeton; Treasurer, S. G. Paddock, Princeton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$664 87
" deficit, last report	$4,100 00	
" received 1880, fees—gate and entrance		3,500 00
" received 1880, booth rents and permits		202 90
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		144 15
" paid 1880, in premiums	2,366 50	
" paid 1880, real estate, buildings, etc	789 33	
" paid 1880, current expenses other than premiums	1,338 24	
" remaining in treasury		
" deficit, including mortgage, etc		3,981 65
Totals	$8,594 07	$8,594 07

CARROLL COUNTY.

OFFICERS.—President, H. C. Blake, Mt. Carroll; Vice-President, Ed. L. Byington, Lanark; Secretary, Don R. Frazer, Mt. Carroll; Treasurer, W. F. Patterson, Mt. Carroll.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$41 48
" deficit, last report	$1,467 50	
" received 1880, fees—gate and entrance		1,722 30
" received 1880, booth rents and permits		502 98
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		131 00
" paid 1880, in premiums	1,483 55	
" paid 1880, real estate, buildings, etc	573 56	
" paid 1880, current expenses other than premiums	429 45	
" remain ng in treasury	11 20	
" deficit, including mortgage, etc		1,467 50
Totals	$3,965 26	$3,965 26

CASS COUNTY.

OFFICERS.—President, J. T. Stribling, Virginia; Vice-President, A. G. Epler, Virginia; Secretary, R. W. Rabourn, Virginia; Treasurer, Jacob A. Epler, Virginia; Directors, C. W. Savage, H. J. Campbell, Robert Hall, George A. Beard, Virginia; J. W. McCullough, Ashland.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$44 25
" deficit, last report	$2,370 06	
" received 1880, fees—gate and entrance		1,389 75
" received 1880, booth rents and permits		362 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		292 00
" paid 1880, in premiums	1,285 45	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	875 72	
" remaining in treasury	26 86	
" deficit, including mortgage, etc		2,370 06
Totals	$4,558 09	$4,558 09

CHAMPAIGN COUNTY.

OFFICERS.—President, E. E. Chester, Champaign; Secretary, H. J. Dunlap, Champaign; Treasurer, C. F. Columbia, Champaign.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$359 41
" deficit, last report		
" received 1880, fees—gate and entrance		2,000 00
" received 1880, booth rents and permits		241 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$1,188 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	1,294 09	
" remaining in treasury	218 82	
" deficit, including mortgage, etc		
Totals	$2,700 91	$2,700 91

CLARK COUNTY.

OFFICERS.—President, Wm. T. Martin, Marshall; Vice-President, H. G. Denzer, Marshall; Secretary, Harry W. Frost, Marshall; Treasurer, David S. McMullen, Marshall; General Superintendent, Austin Gray, Marshall; Marshal, John M. Archer, Marshall.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$847 91
" received 1880, booth rents and permits		77 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		130 50
" paid 1880, in premiums	$729 00	
" paid 1880, real estate, buildings, etc	148 74	
" paid 1880, current expenses other than premiums	277 60	
" remaining in treasury	57	
" deficit, including mortgage, etc		
Totals	$1,155 91	$1,155 91

COLES COUNTY.

OFFICERS.—President, S. D. Dole, Cole's Station; Vice-Presidents, S. G. Chambers, I. J. Monfort, Charleston; M. B. Valodin, Oakland; E. M. Neal, Mattoon; Secretary, R. S. Hodgen, Charleston; Treasurer, J. K. Decker, Charleston; Directors, James Shoemaker, Loxa; J. Flenner, Kansas; S. Van Meter, Mattoon; E. R. Conely, Westfield; John F. Dora, Charleston.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$94 73
" deficit, last report	$800 00	
" received 1880, fees—gate and entrance		2,751 22
" received 1880, booth rents and permits		405 10
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		75 00
" paid 1880, in premiums	1,745 00	
" paid 1880, real estate, buildings, etc	407 93	
" paid 1880, current expenses other than premiums	520 03	
" remaining in treasury		
" deficit, including mortgage, etc		46 91
Totals	$3,472 96	$3,472 96

CRAWFORD COUNTY.

OFFICERS.—President, Wm. Updike, Robinson; Vice-Presidents, S. B. Allen, Robinson; B. Wood, Annapolis; J. M. Highsmith, Robinson; J. L. Woodsworth, Palestine; Secretary, L. V. Chaffee, Robinson; Treasurer, Wm. Parker, Robinson; General Superintendent, W. Fields; Marshal, Wm. Johnson, Robinson.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$17 70
" deficit, last report		
" received 1880, fees—gate and entrance		1,495 20
" received 1880, booth rents and permits		403 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		77 35
" paid 1880, in premiums	$1,449 00	
" paid 1880, real estate, buildings, etc	264 30	
" paid 1880, current expenses other than premiums	173 92	
" remaining in treasury	206 03	
" deficit, including mortgage, etc		
Totals	$2,093 25	$2,093 25

CUMBERLAND COUNTY.

OFFICERS.—President, Wm. N. Berry, Johnston; Secretary, George Bruster, Majority Point; Treasurer, Henry W. Green, Majority Point; Directors, Harlow Park, Greenup; James M. Ewing, David Neal, Neoga; L. L. Logan, W. A. Perry, Majority Point.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$1,669 75	
" received 1880, fees—gate and entrance		$1,466 20
" received 1880, booth rents and permits		116 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	1,019 25	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	300 67	
" remaining in treasury	362 28	
" deficit, including mortgage, etc		1,669 75
Totals	$3,351 95	$3,351 95

DEKALB COUNTY—Sycamore Branch.

OFFICERS.—President, Hiram Holcomb, Sycamore; Secretary, B. F. Wyman, Sycamore; Treasurer, Amos Townsend, Sycamore; Directors, E. P. Safford, L. D. Evans, J. Liglin, Sycamore; A. B. Byers, South Grove; A. L. Lovell, Cortland.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$320 50	
" received 1880, fees—gate and entrance		$1,108 25
" received 1880, booth rents and permits		224 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		90 00
" paid 1880, in premiums	578 00	
" paid 1880, real estate, buildings, etc	140 00	
" paid 1880, current expenses other than premiums	465 49	
" remaining in treasury	18 76	
" deficit, including mortgage, etc		100 00
Totals	$1,522 75	$1,522 75

DEKALB COUNTY—DeKalb Branch.

FINANCIAL EXHIBIT FOR 1880.

[No Fair held in 1880.]

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		
" received 1880, booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		
" paid 1880, in premiums		
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums		
" remaining in treasury		
" deficit, including mortgage, etc		
Totals		

DeKALB COUNTY—Sandwich Branch.

OFFICERS.—President, L. Baldwin, Sandwich; Vice-President, J. P. Adams, Sandwich; Secretary, J. M. Hummel, Sandwich; Treasurer, M. B. Castle, Sandwich.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$1,854 15
" received 1880, booths and permits		190 90
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		172 23
" paid 1880 in premiums	$986 40	
" paid 1880, real estate, buildings, etc	189 59	
" paid 1880, current expenses other than premiums	1,003 85	
" remaining in treasury	37 34	
" deficit, including mortgage, etc		
Totals	$2,217 28	$2,217 28

DeWITT COUNTY.

OFFICERS.—President, James A. Wilson, Clinton; Vice-Presidents, Jacob Swigert, Farmer City; H. P. Smith, Clinton; Secretary, Lewis Campbell, Clinton; Treasurer, Edward Weld, Clinton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$17 11
" deficit last report	$1,250 00	
" received 1880, fees—gate and entrance		1,496 60
" received 1880, booth rents and permits		711 20
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		45 00
" paid in 1880, in premiums	822 75	
" paid in 1880, real estate, buildings, etc		
" paid 1880, current expenses, other than premiums	1,461 10	
" remaining in treasury	86 06	
" deficit, including mortgage, etc		1,250 00
Totals	$3,619 91	$3,619 91

DOUGLAS COUNTY.

OFFICERS.—President, Coleman Bright, Tuscola; Vice-President, Frank M. Friend, Tuscola; Secretary, Chas. G. Eckhart, Tuscola; Treasurer, James D. Higgins, Tuscola.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$6 35
" deficit last report		
" received 1880, fees—gate and entrance		1,072 32
" received 1880, booth rents and permits		137 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		103 45
" paid 1880, in premiums	$745 40	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	631 87	
" remaining in treasury	41 85	
" deficit, including mortgage, etc		
Totals	$1,419 12	$1,419 12

DuPAGE COUNTY.

OFFICERS.—President, Luther Bartlett, Bartlett; Secretary, Thos. M. Hull, Wheaton; Treasurer, Amos Churchill, Lombard; General Superintendent, Saml. E. Shimp, Naperville; Marshal, Philo W. Stacy, Prospect Park; Chairman Auditing Committee, J. A. Patrick, Wheaton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$382 00	
" received 1880, fees—gate and entrance		$618 75
" received 1880, booth rents and permits		54 20
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1980, other sources		193 14
" paid 1880, in premiums	593 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	341 09	
" remaining in treasury		
" deficit, including mortgage, etc		350 00
Totals	$1,316 09	$1,316 09

EDGAR COUNTY.

OFFICERS.—President, William O. Wilson, Paris; Vice-Presidents, Willis O. Powell, Kansas, Samuel Graham, Sidney B. McCord, A. C. Connelly, F. R. Augustus, Samuel Wallace, Paris; Secretary, Walter Booth, Paris; Treasurer, R. N. Parish, Paris; General Superintendent, S. H. Elliott, Paris.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$1,896 18
" deficit, last report		
" received 1880, fees—gate and entrance		3,500 68
" received 1880, booth rents and permits		286 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$2,450 50	
" paid 1880, real estate, buildings, etc	675 00	
" paid 1880, current expenses other than premiums	638 82	
" remaining in treasury	2,018 54	
" deficit, including mortgage, etc		
Totals	$5,782 86	$5,782 86

EDWARDS COUNTY.

Officers.—President, John Curtis, Albion; Vice-President, H. O. Porter, Bone Gap; Secretary, Morris Emmerson, Albion; Treasurer, Geo. Weaver, Albion.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$890 00
" deficit, last report		
" received 1880, fees—gate and entrance		1,773 10
" received 1880, booth rents and permits		300 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$1,238 25	
" paid 1880, real estate, buildings, etc	360 46	
" paid 1880, current expenses other than premiums	451 28	
" remaining in treasury	1,013 82	
" deficit, including mortgage, etc		
Totals	$3,063 81	$3,063 81

EFFINGHAM COUNTY.

Officers.—President, E. H. Bishop, Effingham; Vice-President, H. D. Caldwell, Effingham; Secretary, Geo. M. Lecrone, Effingham; Treasurer, A. Grovenhorst, Effingham.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$701 25
" received 1880, booth rents and permits		375 00
" received 1880, sale shares of stock		340 00
" received 1880, State appropriation		
" received 1880, other sources		85 00
" paid 1880, in premiums	$906 00	
" paid 1880, real estate, buildings, etc	595 25	
" paid 1880, current expenses other than premiums		
" remaining in treasury		
" deficit, including mortgage, etc		
Totals	$1,501 25	$1,501 25

FAYETTE COUNTY.

Officers.—President, John Thompson, Vandalia; Vice-Presidents, A. Griffith, Brownstown; A. Peak, Vera; Secretary, D. M. Clark, Vandalia; Assistant Secretary, W. E. McCord, Vandalia; Treasurer, Simeon Perkins, Vandalia; Assistant Treasurer, Austin Campbell, Vandalia; General Superintendent, Geo. W. Heninger, Hagerstown.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$8 57
" deficit, last report		
" received 1880, fees—gate and entrance		869 70
" received 1880, booth rents and permits		183 00
" received 1880, sale shares of stock		
received 1880, State appropriation		100 00
received 1880, other sources		171 25
paid 1880, in premiums	$777 50	
" paid 1880, real estate, buildings, etc	550 00	
" paid 1880, current expenses other than premiums	393 89	
" remaining in treasury		
" deficit, including mortgage, etc		388 87
Totals	$1,721 39	$1,721 39

FORD COUNTY—Paxton.

OFFICERS.—President, A. Croft, Paxton; Vice-Presidents, J. P. Day, H. J. Schæffer, Paxton; A. Goodell, Loda; Secretary, W. McTaggart, Paxton; Treasurer, J. M. Hall, Paxton; Marshal, N. B. Day, Paxton; Superintendent, John P. Day, Paxton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$1,000 00
" received 1880, booth rents and permits		105 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		21 50
" paid 1880, in premiums	$365 07	
" paid 1880, real estate, buildings, etc	360 00	
" paid 1880, current expenses other than premiums	251 43	
" remaining in treasury	150 00	
" deficit, including mortgage, etc		
Totals	$1,126 50	$1,126 50

FRANKLIN COUNTY.

OFFICERS.—President, William A. King, Ewing College; Vice-President, Peyton S. Pope, Benton; Recording Secretary, Charles A. Akin, Benton; Corresponding Secretary, Wm. C. Phipps, Benton; Treasurer, A. D. Jackson, Benton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$98 26
" deficit, last report		
" received 1880, fees—gate and entrance		1,419 18
" received 1880, booth rents and permits		94 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$867 00	
" paid 1880, real estate, buildings, etc	548 07	
" paid 1880, current expenses other than premiums	318 89	
" remaining in treasury		
" deficit, including mortgage, etc		22 02
Totals	$1,733 96	$1,733 96

FULTON COUNTY—Canton Branch.

Officers.—President, Inman Blackaby, Civer; Vice-President, John R. Gardiner, Canton; Secretary, C. A. Emery, Canton; Treasurer, John R. Gardiner, Canton; General Superintendent, S. S. Miller, Canton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$2,744 00
" received 1880, both rents and permits		147 00
" received 1880, sale of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		170 00
" paid 1880, in premiums	$1,743 50	
" paid 1880, real estate, buildings, etc	376 00	
" paid 1880, current expenses other than premiums	958 50	
" remaining in treasury	33 00	
" deficit, including mortgage, etc		
Totals	$3,111 00	$3,111 00

FULTON COUNTY—Avon Branch.

Officers.—President, D. H. Gorham, Avon; Vice-Presidents, O. Chatterton, O. Crissey, S. Tompkins, J. B. Hatch, Avon; Secretary, A. B. Tompkins, Avon; Treasurer, O. J. Beam, Avon; Directors, E. Hawkins, Hermon; J. J. Serven, G. W. Hamilton, Prairie City; J. Kutchler, W. H. Rose, Avon.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$133 97
" deficit, last report		
" received 1880, fees—gate and entrance		2,502 40
" received 1880, booth rents and permits		487 30
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		207 63
" paid 1880, in premiums	$2,115 00	
" paid 1880, real estate, buildings, etc	299 80	
" paid 1880, current expenses other than premiums	895 11	
" remaining in treasury	71 39	
" deficit, including mortgage, etc		
Totals	$3,381 30	$3,381 30

GALLATIN COUNTY.

OFFICERS.—President, M. M. Pool, Shawneetown; Vice-President, C. W. McGehee, Shawneetown; Secretary, John L. Robinson, Shawneetown; Treasurer, John D. Richerson, Shawneetown; Marshal, Joseph Ulmenider, Shawneetown; General Superintendent, Wm. Wisehart, Shawneetown.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$1,306 00
" deficit, last report		
" received 1880, fees, gate and entrance		2,965 00
" received 1880, booth rent and permits		650 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$2,126 00	
" paid 1880, real estate, buildings, etc	1,605 00	
" paid 1880, current expenses other than premiums	650 00	
" remaining in treasury	640 00	
" deficit, including mortgage, etc		
Totals	$5,021 00	$5,021 00

GREENE COUNTY.

OFFICERS.—President, Geo. W. Davis, Carrollton; Vice-President, C. I. McCollister, White Hall; Secretary, N. J. Andrews, Carrollton; Treasurer, L. S. Eldred, Carrollton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$1 354 46
" deficit, last report		
" received 1880, fees—gate and entrance		3,469 30
" received 1880, booth rents and permits		444 75
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		550 00
" paid 1880, in premiums	$1,889 50	
" paid 1880, real estate, buildings, etc	500 00	
" paid 1880, current expenses other than premiums	3,276 38	
" remaining in treasury	192 63	
" deficit, including mortgage, etc		
Totals	$5,858 51	$5,858 51

HAMILTON COUNTY.

OFFICERS.—President, V. S. Benson, McLeansboro; Vice-President, John J. Buck, McLeansboro; Secretary, G. B. Wheeler, McLeansboro; Treasurer, C. G. McCoy, McLeansboro.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$2,186 25
" received 1880, booth rents and permits		368 50
" received 1880, sale shares of stock		2,500 00
" received 1880, State appropriation		
" received 1880, other sources		
" paid 1880, in premiums	$1,200 75	
" paid 1880, real estate, buildings, etc	5,800 00	
" paid 1880, current expenses other than premiums	316 92	
" remaining in treasury	177 08	
" deficit, including mortgage, etc		2,440 00
Totals	$7,494 75	$7,494 75

HARDIN COUNTY.

OFFICERS.—President, J. B. Miller, Sr., Elizabethtown; Vice-President, R. P. Hetherington, Elizabethtown; Recording Secretary, Jas. A. Loury, Elizabethtown; Corresponding Secretary, L. F. Twitchell, Elizabethtown; Treasurer, T. A. McAmis, Elizabethtown.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$226 00	
" received 1880, fees—gate and entrance		$473 53
" received 1880, booth rents and permits		169 70
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		12 00
" paid 1880, in premiums	514 40	
" paid 1880, real estate, buildings, etc	50 00	
" paid 1880, current expenses other than premiums	89 83	
" remaining in treasury		
" deficit, including mortgage, etc		125 00
Totals	$880 23	$880 23

HENDERSON COUNTY.

OFFICERS.—President, H. M. Whiteman, Biggsville; Vice-President, Thos. G. Richey, Olena; Recording Secretary, R. A. McKinley, Biggsville; Corresponding Secretary, Geo. W. Holmes, Biggsville; Treasurer, George McDill, Biggsville; Executive Committee, John H. McDougal, John R. McQuown, P. D. Gibb, Biggsville; James Duke, Rozetta; Elijah Beal, Terre Haute; P. D. Salter, Kirkwood; J. H. Words, Oquawka; John H. Rice, Keithsburg.

FINANCIAL EXHIBIT FOR 1888.

Amount in treasury, last report		
" deficit, last report	$377 74	
" received 1880, fees—gate and entrance		$1,328 87
" received 1880, booth rents and permits		183 55
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		118 00
" paid 1880, in premiums	1,421 75	
" paid 1880, real estate, buildings, etc	100 00	
" paid 1880, current expenses other than premiums	208 67	
" remaining in treasury		
" deficit, including mortgage, etc		377 74
Totals	$2,108 16	$2,108 16

HENRY COUNTY.

OFFICERS.—President, N. C. Gilbert, Geneseo; Vice-President, A. A. Crane, Osco; Secretary, R. H. Hinman, Cambridge; Assistant Secretary, F. G. Wilton, Cambridge; Treasurer, W. H. Shepard, Cambridge; General Superintendent, Amos Gould, Cambridge.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$548 65
" deficit, last report	$1,563 00	
" received 1880, fees—gate and entrance		3,451 81
" received 1880, booth rents and permits		775 40
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		111 97
" paid 1880, in premiums	3,145 50	
" paid 1880, real estate, buildings, etc	817 00	
" paid 1880, current expenses other than premiums	1,009 41	
" remaining in treasury	6 92	
" deficit, including mortgage, etc		1,554 00
Totals	$6,541 83	$6,541 83

IROQUOIS COUNTY—Onarga Branch.

OFFICERS.—President, D. C. Brown, Onarga; Vice-Presidents, J. W. Wilson, Ridgeland: Horace Pinney, Onarga; W. B. Crider, Del Rey; Secretary, E. C. Hall, Onarga; Treasurer, D. F. Ward, Onarga.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		
" deficit, last report	$1,771 10	
" received 1880, fees—gate and entrance		$643 50
" received 1880, booth rents and permits		272 95
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		367 96
" paid 1880, in premiums	986 50	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	397 91	
" remaining in treasury		
" deficit, including mortgage, etc		1,771 10
Totals	$3,155 51	$3,155 51

IROQUOIS COUNTY—Watseka Branch.

OFFICERS.—President, J. H. Jones, Milford; Vice-President, Dan Fry, Watseka; Secretary, Robert Hayes, Watseka; Assistant Secretary, H. C. Stearns, Watseka; Treasurer, J. W. Riggs, Watseka; General Manager, W. M. Coney, Watseka.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$1,825 00
" received 1880, booth rents and permits		400 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		
" paid 1880, in premiums	$1,325 00	
" paid 1880, real estate, buildings, etc	675 00	
" paid 1880, current expenses other than premiums		
" remaining in treasury	225 00	
" deficit, including mortgage, etc		
Totals	$2,225 00	$2,225 00

JACKSON COUNTY.

OFFICERS.—President, Philip Kimmell, Sr., DeSoto; Secretary, Jno. W. Grear, Murphysboro; Treasurer, Jefferson Jenkins, Murphysboro; Directors, Philip Kimmell, Sr., DeSoto; Jefferson Jenkins, O. J. Levan, M. A. Ross, Murphysboro; J. M. Sourlock, Carbondale.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$47 43
" deficit last report	$300 00	
" received 1880, fees—gate and entry		435 17
" received 1880, booth rents and permits		43 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	263 70	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	443 15	
" remaining in treasury	118 75	
" deficit, including mortgage, etc		500 00
Totals	$1,125 60	$1,125 60

JASPER COUNTY.

OFFICERS.—President, John Mason, Newton; Vice-President, R. G. Scott, Ingraham; Secretary, W. E. Barrett, Newton; Treasurer, W. L. Heath, Newton.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		
" deficit last report	$1,212 27	
" received 1880, fees—gate and entrance		$1,685 10
" received 1880, booth rents and permits		243 00
" received 1880, sale shares of stock		1,500 00
" received 1880, State appropriation		100 00
" received 1880, other sources		15 50
" paid 1880, in premiums	1,189 25	
" paid 1880, real estate, buildings, etc	559 00	
" paid 1880, current expenses other than premiums	361 82	
" amount remaining in treasury	221 26	
" deficit, including mortgage, etc		
Totals	$3,543 60	$3,543 60

JEFFERSON COUNTY.

OFFICERS.—President, Jesse A. Dees, Ashley; Vice-President, Jno. Wilbanks, Mt. Vernon; Recording Secretary, John S. Bogan, Mt. Vernon; Corresponding Secretary, Albion F. Taylor, Mt. Vernon; General Superintendent, John C. McConnell, Dix.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		
" deficit last report		
" received 1880, fees—gate and entrance		$2,395 64
" received 1880, booth rents and permits		569 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		44 00
" paid 1880, in premiums	$2,033 50	
" paid 1880, real estate, buildings, etc	525 00	
" paid 1880, current expenses other than premiums	447 68	
" remaining in treasury	2 96	
" deficit, including mortgage, etc		
Totals	$3,009 14	$3,009 14

JERSEY COUNTY.

OFFICERS.—President, Joseph M. Conklin, Jerseyville; Vice-President, C. C. Cummings, Jerseyville; Secretary, Morris R. Locke, Jerseyville; Treasurer, John A. Shephard, Jerseyville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$513 68
" deficit, last report		
" received 1880, fees—gate and entrance		5,840 50
" received 1880, booth rents and permits		1,080 60
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		1,162 00
" paid 1880, in premiums	$4,036 00	
" paid 1880, real estate, buildings, etc	50 00	
" paid 1880, current expenses other than premiums	2,512 78	
" remaining in treasury	2,098 00	
" deficit, including mortgage, etc		
Totals	$8,696 78	$8,696 78

JoDAVIESS COUNTY—Galena.

OFFICERS.—President, S. S. Brown, Galena; Vice-President, J. A. Hammond, Hanover; Secretary, Frank Bostwick, Galena; Treasurer, D. N. Corwith, Galena; Directors, E. M. Bouton, F. Chetlain, T. B. Hughlett, Galena; S. T. Napper, Scales Mound; John Speer, Hanover.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$2,311 00	
" received 1880, fees—gate and entrance		$945 50
" received 1880, booth rents and permits		100 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		200 00
" paid 1880, in premiums	796 85	
" paid 1880, real estate, buildings, etc	50 00	
" paid 1880, current expenses other than premiums	448 65	
" remaining in treasury		
" deficit, including mortgage, etc		2,311 00
Totals	$3,606 50	$3,606 50

JoDAVIESS COUNTY—Warren.

OFFICERS.—President, Robert Hawley, Warren; Vice-President, Wm. Young, Lena; Secretary, Joseph Hicks, Warren; Treasurer, A. C. Schadle, Warren; Directors, G. W. Pepoon, W. L. Gale, M. Lynch, Warren.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$96 98
" deficit, last report	$829 17	
" received 1880, fees—gate and entrance		864 30
" received 1880, booth rents and permits		293 45
" received 1880, sale shares of stock		
" received 1880, State appropriation		*100 00
" received 1880, other sources		36 85
" paid 1880, in premiums	596 00	
" paid 1880, real estate, buildings, etc	84 92	
" paid 1880, current expenses other than premiums	355 34	
" remaining in treasury	26 15	
" deficit, including mortgage, etc		500 00
Totals	$1,891 58	$1,891 58

* For 1879 and 1880.

KANE COUNTY—Elgin.

OFFICERS.—President, H. Lee Borden, Elgin; Vice-President, Frank H. Hall, Sugar Grove; Treasurer, S. W. Curtis, Geneva; Secretary, R. P. McGlincy, Elgin.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$35 75
" deficit, last report		
" received 1880, fees—gate and entrance		1,607 71
" received 1880, booth rents and permits		19 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		646 50
" paid 1880, in premiums	$1,547 50	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	858 36	
" remaining in treasury	3 10	
" deficit, including mortgage, etc		
Totals	$2,408 96	$2,408 96

KANKAKEE COUNTY.

OFFICERS.—President, H. D. Worcester, Momence; Vice-President, Fayette Peck, Kankakee; Secretary, Henry S. Bloom, Kankakee; Treasurer, Walter W. Todd, Kankakee.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$11 39
" deficit, last report	$1,329 10	
" received 1880, fees—gate and entrance		1,618 30
" received 1880, booth rents and permits		196 75
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		235 05
" paid 1880, in premiums	1,400 50	
" paid 1880, real estate, buildings, etc	65 66	
" paid 1880, current expenses other than premiums	695 33	
" remaining in treasury		
" deficit, including mortgage, etc		1,329 10
Totals	$3,490 59	$3,490 59

KENDALL COUNTY.

OFFICERS.—President, J. S. Seely, Oswega; Vice-President, A. Welch, Yorkville; Secretary, A. N. Beebe, Plano; Treasurer, I. B. Chattle, Oswego.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$637 33
" received 1880, booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$85 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	650 25	
" remaining in treasury	2 08	
" deficit, including mortgage, etc		
Totals	$737 33	$737 33

KNOX COUNTY—Knoxville.

OFFICERS.—President, J. V. N. Standish, Galesburg; Vice-President, D. M. Eiker, Knoxville; Secretary, J. L. Rynearson, Knoxville; Treasurer, G. G. Stearns, Knoxville; Executive Committee, J. H. Lewis, J. C. Eiker, J. L. Cushman, J. F. Hubble, F. Doolittle, M. L. Overstreet, James Sumner, L. W. Benson, J. G. West.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$40 25
" deficit, last report		
" received 1880, fees—gate and entrance		$2,551 95
" received 1880, booth rents and permits		560 75
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		94 05
" paid 1880, in premiums	$1,977 00	
" paid 1880, real estate, buildings, etc	300 00	
" paid 1880, current expenses other than premiums	900 00	
" remaining in treasury	170 00	
" deficit, including mortgage, etc		
Totals	$3,347 00	$3,347 00

LAKE COUNTY—Libertyville.

OFFICERS.—President, W. H. Appley, Libertyville; Vice-Presidents, E. B. Phillips, Waukegan; G. N. Gridley, Half Day; Secretary, John A. Avery, Waukegan; Treasurer, J. W. Butler, Libertyville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$47 54
" deficit, last report		
" received 1880, fees—gate and entrance		545 80
" received 1880, booth rents and permits		64 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		41 25
" paid 1880, in premiums	$472 19	
" paid 1880, real estate, buildings, etc	33 50	
" paid 1880, current expenses other than premiums	187 96	
" remaining in treasury	54 94	
" deficit, including mortgage, etc		
Totals	$748 59	$748 59

LAKE COUNTY.—Waukegan.

OFFICERS.—President, John F. Powell, Waukegan; Vice-President, A. Z. Blodgett, Waukegan; Secretary, Charles A. Partridge, Waukegan; Treasurer, H. C. Hutchinson, Waukegan; Trustees, Geo. H. Burnett, Orson H. Heath, H. C. Hutchinson, John F. Powell, A. Z. Blodgett, Jas. P. Nichols, A. C. Bower, D. W. Arnold, G. B. Watrous.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$298 34
" deficit, last report	$4,000 00	
" received 1880, fees—gate and entrance		3,654 60
" received 1880, booth rents and permits		352 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		206 00
" paid 1880, in premiums	2,103 20	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	1,600 12	
" remaining in treasury	857 62	
" deficit, including mortgage, etc		4,000 00
Totals	$8,560 94	$8,560 94

LASALLE COUNTY.

OFFICERS.—President, James H. Pickens, Ottawa; Vice-Presidents, Ransom Palmer, Grand Ridge; Henry Holmes, J. R. Shaver, Ottawa; Secretary, A. M. Hoffman, Ottawa; Treasurer, L. H. Eames, Ottawa.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$51 27
" deficit, last report		
" received 1880, fees—gate and entrance		2,251 04
" received 1880, booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$1,371 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	658 92	
" remaining in treasury	372 39	
" deficit, including mortgage, etc		
Totals	$2,402 31	$2,402 31

*LAWRENCE COUNTY.

OFFICERS.—President, James W. Whittaker, Lawrenceville; Secretary, Daniel L. Gold, Lawrenceville; Treasurer, E. Schmalhausen, Lawrenceville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		
" deficit last report	$600 00	
" received 1880, fees—gate and entrance		
" received 1880, booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, State appropriation		$100 00
" received 1880, other sources		
" paid 1880, in premiums		
" paid 1880, real estate, buildings, etc	50 00	
" paid 1880, current expenses other than premiums	50 00	
" remaining in treasury		
" deficit, including mortgage, etc		600 00
Totals	$700 00	$700 00

* No Fair held in 1880.

LIVINGSTON COUNTY—Fairbury.

OFFICERS.—President, R. C. Straight, Fairbury; Vice-President, J. R. Strawn, Chatsworth; Secretary, H. L. Bruce, Fairbury; Treasurer, L. B. Dominy, Fairbury.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$13 11
" deficit last report	$1,953 00	
" received 1880, fees—gate and entrance		3,309 24
" received 1880, booth rents and permits		471 60
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		107 30
" paid in 1880, in premiums	2,448 25	
" paid in 1880, real estate, buildings, etc		
" paid 1880, current expenses, other than premiums	952 19	
" remaining in treasury	197 81	
" deficit, including mortgage, etc		1,600 00
Totals	$5,551 25	$5,551 25

LOGAN COUNTY—Lincoln.

OFFICERS.—President, Joseph Ream, Lincoln; Vice-President, Joseph Bell, Atlanta; Secretary, A. B. Nicholson, Lincoln; Assistant Secretary, A. M. Denny, Lincoln; Treasurer, Simon Rock, Lincoln.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$619 29	
" received 1880, fees—gate and entrance		$3,060 33
" received 1880, booths and permits		438 50
" received 1880, sale shares of stock		25 00
" received 1880, State appropriation		50 00
" received 1880, other sources		995 25
" paid 1880 in premiums	3,052 40	
" paid 1880, real estate, buildings, etc	458 55	
" paid 1880, current expenses other than premiums	1,365 70	
" remaining in treasury		
" deficit, including mortgage, etc		926 86
Totals	$5,495 94	$5,495 94

LOGAN COUNTY—Atlanta.

OFFICERS.—President, Frank Hoblitt, Atlanta; Secretary, J. P. Hieronymus, Atlanta; Treasurer, Frank Hoblitt, Atlanta; Directors, J. H. Bell, J. W. Eddy, F. J. Fields, E. Harness, J. P. Hieronymus, Atlanta; Ed. Stubblefield, McLean; Wm. Gambrel, Waynesville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$34 42
" deficit, last report	$2,430 00	
" received 1880, fees—gate and entrance		2,086 55
" received 1880, booth rents and permits		148 90
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		481 37
" paid 1880, in premiums	1,347 00	
" paid 1880, real estate, buildings, etc	34 85	
" paid 1880, current expenses other than premiums	659 86	
" remaining in treasury	29 53	
" deficit, including mortgage, etc		1,700 00
Totals	$4,501 24	$4,501 24

MACON COUNTY.

OFFICERS.—President, John R. Miller, Decatur; Vice-President, E. A. Jones, Decatur; Secretary, M. B. Thomas, Decatur; Treasurer, Jacob H. Miller, Decatur.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$4 17
" deficit, last report		
" received 1880, fees—gate and entrance		$2,497 18
" received 1880, booth rents and permits		481 30
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		22 00
" paid 1880, in premiums	$2,062 50	
" paid 1880, real estate, buildings, etc	254 00	
" paid 1880, current expenses other than premiums	788 15	
" remaining in treasury		
" deficit, including mortgage, etc		
Totals	$3,104 65	$3,104 65

MACOUPIN COUNTY.

OFFICERS.—President, Joseph Bird, Carlinville; Vice-President, John P. Henderson, Virden; Secretary, F. W. Crouch, Carlinville; Treasurer, Robert Bacon, Buford.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$2,988 70
" received 1880, booth rents and permits		749 25
" received 1880, sale shares of stock		6,225 00
" received 1880, State appropriation		
" received 1880, other sources		539 35
" paid 1880, in premiums	$2,032 50	
" paid 1880, real estate, buildings, etc	6,089 70	
" paid 1880, current expenses other than premiums	1,142 27	
" remaining in treasury	1,237 83	
" deficit, including mortgage, etc		
Totals	$10,502 30	$10,502 30

MASON COUNTY.

OFFICERS.—President, J. F. Kelsey, Havana; Vice-President, B. F. Howell, Havana; Secretary, S. F. Kyle, Havana; Treasurer, Thos. Covington, Havana; Superintendent, W. H. Webb, Havana.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$69 66
" deficit last report		
" received 1880, fees—gate and entrance		1,203 00
" received 1880, booth rents and permits		304 00
" received 1880, sale shares of stock		
" received 1880, State appropriation for 1879		100 00
" received 1880, other sources		
" paid 1880, in premiums	$941 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	702 84	
" remaining in treasury	32 82	
" deficit, including mortgage, etc		
Totals	$1,676 66	$1,676 66

MASSAC COUNTY.

OFFICERS.—President, J. C. Willis, Metropolis; Vice-President, Owen Bruner, Metropolis; Secretary, J. M. Stone, Metropolis; Treasurer, A. D. Davis, Metropolis; Directors, W. P. Bruner, John Austin, Townsley Roby, F. H. Meyer, Metropolis.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$425 78
" deficit, last report		
" received 1880, fees—gate and entrance		479 45
" received 1880, booth rents and permits		174 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		112 50
" paid 1880, in premiums	$686 35	
" paid 1880, real estate, buildings, etc	1,003 14	
" paid 1880, current expenses other than premiums	264 70	
" remaining in treasury		
" deficit, including mortgage, etc		661 96
Totals	$1,954 19	$1,954 19

McDONOUGH COUNTY—Macomb.

OFFICERS.—President, W. O. Blaisdell, Macomb; Vice-President, Geo. W. Barker, Colmar; Secretary, W. H. Hainline, Macomb; Treasurer, I. N. Pearson, Macomb; Directors, Thompson Chandler, A. V. Brooking, P. H. Delaney, Milton Knight, Macomb; A. Hanson, Adair.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		
" deficit, last report	$4,052 58	
" received 1880, fees—gate and entrance		$3,332 00
" received 1880, booth rents and permits		739 50
" received 1880, sale shares of stock		110 00
" received 1880, State appropriation		100 00
" received 1880, other sources		262 70
" paid 1880, in premiums	3,241 25	
" paid 1880, real estate, buildings, etc	184 90	
" paid 1880, current expenses other than premiums	1,118 05	
" remaining in treasury		
" deficit, including mortgage, etc		4,052 58
Totals	$8,596 78	$8,596 78

McHENRY COUNTY—Woodstock.

OFFICERS.—President, T. McD. Richards, Woodstock; Vice-Presidents, Richard Wray, Richmond, L. Woodard, Marengo; Secretary, W. H. Stewart, Woodstock; Treasurer, A. L. Salisbury; Superintendent, Mark Hickox, Woodstock.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$18 06
" deficit, last report	$2,000 00	
" received 1880, fees—gate and entrance		1,064 57
" received 1880, booth rents and permits		272 43
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		544 94
" paid 1880, in premiums	712 87	
" paid 1880, real estate, buildings, etc	1,000 00	
" paid 1880, current expenses other than premiums	687 13	
" remaining in treasury		
" deficit, including mortgage, etc		2,500 00
Totals	$4,400 00	$4,400 00

McHENRY COUNTY—Marengo.

OFFICERS.—President, L. W. Sheldon, Marengo; Vice-Presidents, H. Underwood, W. A. Boies, Marengo; Secretary, J. S. Rogers, Marengo; Treasurer, R. M. Patrick, Marengo; General Superintendent, E. H. Seward, Marengo; Marshal, Jared Teeple, Marengo.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$940 67
" received 1880, booth rents and permits		211 23
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		202 05
" paid 1880, in premiums	$750 00	
" paid 1880, real estate, buildings, etc	120 00	
" paid 1880, current expenses other than premiums	483 95	
" remaining in treasury		
" deficit, including mortgage, etc		
Totals	$1,353 95	$1,353 95

McLEAN COUNTY.

OFFICERS.—President, D. M. Funk, Bloomington; Vice-Presidents, John O. Davis, Heyworth; F. M. Jones, Towanda; Secretary, J. T. Didlake, Towanda; Treasurer, J. Brewster, Bloomington.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$271 15
" deficit, last report	$8,300 00	
" received 1880, fees—gate and entrance		1,417 20
" received 1880, booth rents and permits		351 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		920 70
" paid 1880, in premiums	1,424 00	
" paid 1880, real estate, buildings, etc	510 40	
" paid 1880, current expenses other than premiums	1,125 65	
" remaining in treasury		
" deficit, including mortgage, etc		8,300 00
Totals	$11,360 05	$11,360 05

MENARD COUNTY.

Officers.—President, David Grant, Petersburg; Vice-President, George B. Welch, Tallula; Secretary, Robert S. Carter, Petersburg; Treasurer, Aaron Thompson, Petersburg.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$864 00	
" received 1880, fees—gate and entrance		$1,004 95
" received 1880, booth rents and permits		510 45
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		114 86
" paid 1880, in premiums	583 08	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	656 01	
" remaining in treasury		
" deficit, including mortgage, etc		372 83
Totals	$2,103 09	$2,103 09

MERCER COUNTY.

Officers.—President, James Feather, Sunbeam; Vice-President, John Brady, Joy; Secretary, C. F. Durston, Aledo; Treasurer, D. T. Hindman, Aledo.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$21 16
" deficit, last report	$642 10	
" received 1880, fees—gate and entrance		3,160 00
" received 1880, booth rents and permits		535 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		141 50
" pa d 1880, in premiums	2,292 35	
" paid 1880, real estate, buildings, etc	571 28	
" paid 1880, current expenses other than premiums	830 08	
" remaining in treasury	42 35	
" deficit, including mortgage, etc		420 00
Totals	$4,378 16	$4,378 16

MORGAN COUNTY.

Officers.—President, F. M. Morton, Jacksonville; Vice-Presidents, A. B. Green, A. R. Gregory, Jacksonville; Secretary, J. M. Dunlap, Jacksonville; Treasurer, B. F. Beasley, Jacksonville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$185 10
" deficit, last report		
" received 1880, fees—gate and entrance		3,607 75
" received 1880, booth rents and permits		244 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		609 00
" paid 1880, in premiums	$3,403 97	
" paid 1880, real estate, buildings, etc	3,573 36	
" paid 1880, current expenses other than premiums	1,166 69	
" remaining in treasury		
" deficit, including mortgage, etc		3,398 17
Totals	$8,144 02	$8,144 02

MOULTRIE COUNTY.

OFFICERS.—President, O. A. Sargent, Windsor; Vice-Presidents, J. T. Howell, John Dawson, Lovington; Secretary, G. W. Vaughan, Sullivan; Treasurer, P. B. Gillham, Sullivan; Directors, T. H. Crander, Reuben Adkins, Bethany; Wm. Kirkwood, R. E. Nayworthy, Sullivan; James Bruce, Windsor; S. P. Lilly, Coles Station; C. C. Berks, Williamsburg.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$4 00
" deficit, last report		
" received 1880, fees—gate and entrance		1,148 34
" received 1880, booth rents and permits		100 00
" received 1880, sale shares of stock		
" received 1880, Sta e appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$912 80	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	430 20	
" remaining in treasury	9 34	
" deficit, including mortgage, etc		
Totals	$1,352 34	$1,352 34

OGLE COUNTY—Oregon.

OFFICERS.—President, James H. Cartwright, Oregon; Vice-President, George A. Mix, Oregon; Secretary, Henry P. Lason, Oregon; Treasurer, John T. Gantz, Oregon; Directors, Thomas J. Fearer, Leander Griffin, James H. King, J. C. Moats.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$107 00
" deficit, last report	$900 00	
" received 1880, fees—gate and entrance		1,416 53
" received 1880, booth rents and permits		544 20
" received 1880, sale shares of stock		30 00
" received 1880, State appropriation		50 00
" received 1880, other sources		347 00
" paid 1880, in premiums	1,474 00	
" paid 1880, real estate, buildings, etc	761 17	
" paid 1880, current expenses other than premiums	473 24	
" remaining in treasury		
" deficit, including mortgage, etc		1,113 68
Totals	$3,608 41	$3,608 41

OGLE COUNTY—Rochelle.

OFFICERS.—President, Wm. Stocking, Rochelle; Secretary, G. W. Clark, Rochelle; Treasurer, A. Bothwell, Rochelle; General Superintendent, J. M. May, Rochelle; Executive Committee, David Sheaff, Holcomb; Thos. Smith, Creston; Wm. A. Chambers, J. A. Countryman, Rochelle; Wesley W. Holton, Stuart.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$75 00
" deficit last report		
" received 1880, fees—gate and entrance		1,900 00
" received 1880, booth rents and permits		531 84
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		219 40
" paid 1880, in premiums	$1,588 85	
" paid 1880, real estate, buildings, etc	796 79	
" paid 1880, current expenses other than premiums	390 60	
" amount remaining in treasury		
" deficit, including mortgage, etc		
Totals	$2,776 24	$2,776 24

PERRY COUNTY.

OFFICERS.—President, W. K. Murphy, Pinckneyville; Secretary, L. M. Kane, Pinckneyville; Treasurer, Thos. Boyd, Pinckneyville; Marshal, Matthew Rule, Pinckneyville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury last report		$529 51
" deficit last report		
" received 1880, fees—gate and entrance		1,951 95
" received 1880, booth rents and permits		645 80
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		379 35
" paid 1880, in premiums	$1,113 75	
" paid 1880, real estate, buildings, etc	1,405 14	
" paid 1880, current expenses other than premiums	277 75	
" remaining in treasury	809 97	
" deficit, including mortgage, etc		
Totals	$3,606 61	$3,606 61

PIATT COUNTY.

OFFICERS.—President, Jesse W. Warner, Monticello; Vice-President, Oscar Mansfield, Mansfield; Recording Secretary, H. D. Peters, Monticello; Corresponding Secretary, Theo. Gross, Monticello; Treasurer, H. V. Moore, Monticello.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$21 00	
" received 1880, fees—gate and entrance		$2,946 30
" received 1880, booth rents and permits		729 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		178 25
" paid 1880, in premiums	1,662 50	
" paid 1880, real estate, buildings, etc	300 11	
" paid 1880, current expenses other than premiums	773 02	
" remaining in treasury	1,197 42	
" deficit, including mortgage, etc		
Totals	$3,954 05	$3,954 05

PIKE COUNTY.

OFFICERS.—President, Allen C. Rush, Perry; Vice-President, Lewis Ham, Chambersburg; Secretary, James H. Crane, Pittsfield; Treasurer, S. Grigsby, Pittsfield; Directors: C. B. Dustin, Atlas; E. N. French, Milton; Henry Hall, ElDora; Frank Zerenburg, Pleasant Hill; George Watson, Hadley; Allen C. Rush, Perry; N. P. Hart, Barry; Wm. R. Wells, Dan. E. Bates, Pittsfield.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$152 00
" deficit, last report		
" received 1880, fees—gate and entrance		2,341 65
" received 1880, booth rents and permits		770 65
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$2,018 00	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	1,270 54	
" remaining in treasury	75 76	
" deficit, including mortgage, etc		
Totals	$3,364 30	$3,364 30

POPE COUNTY.

OFFICERS.—President, John Allen, Golconda; Recording Secretary, James A. Rose, Golconda; Corresponding Secretary, J. E. Y. Hanna, Golconda; Treasurer, M. G. Bird, Golconda; Marshal, J. R. Steagall, Golconda; Directors, J. R. Smith, Thos. H. Clark, Gordon Thompson, David Calkin, J. S. Crawford, Golconda.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$26 68
" deficit, last report		
" received 1880, fees—gate and entrance		1,110 00
" received 1880, booth rents and permits		90 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$639 90	
" paid 1880, real estate, buildings, etc	1,148 47	
" paid 1880, current expenses other than premiums	201 26	
" remaining in treasury		
" deficit, including mortgage, etc		662 95
Totals	$1,989 63	$1,989 63

RANDOLPH COUNTY—Sparta.

OFFICERS.—President, John Anderson; Vice-Presidents, Jas. Craig, Wm. C. Gordon, John W. Allen, Sparta; Wm. Hood, Coulterville; John Andrew, Tilden; Jas. Lessley, Houston; Jacob Rabbe, Evansville; John Roscow, Red Bud; Chas. Robbins, Steel's Mills; Henry Hitman, Bremen; Wesley Grant, Wm. Murphy, Diamond Cross; Secretary, M. E. Foster, Sparta; Treasurer, J. C. Perkins, Sparta.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$874 03	
" received 1880, fees—gate and entrance		$1,632 55
" received 1880, both rents and permits		388 25
" received 1880, sale of stock		
" received 1880, State appropriation		
" received 1880, other sources		1,492 96
" paid 1880, in premiums	$1,679 60	
" paid 1880, real estate, buildings, etc	365 89	
" paid 1880, current expenses other than premiums	1,834 16	
" remaining in treasury		
" deficit, including mortgage, etc		1,239 92
Totals	$4,753 68	$4,753 68

RANDOLPH COUNTY—Chester.

OFFICERS.—President, Wm. A. Gordon, Chester; Vice-President, G. W. Staley, Chester; Secretary, Wm. Schuchert, Chester; Assistant Secretary, Louis H. Gilster, Chester; Treasurer, Isaac Lehnherr, Chester; General Superintendent, Thomas Gant, Diamond Cross.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$271 60
" deficit, last report		
" received 1880, fees—gate and entrance		2,697 90
" received 1880, booth rents and permits		783 30
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		56 00
" paid 1880, in premiums	$1,885 00	
" paid 1880, real estate, buildings, etc	67 00	
" paid 1880, current expenses other than premiums	1,038 00	
" remaining in treasury	823 80	
" deficit, including mortgage, etc		
Totals	$3,813 80	$3,813 80

RICHLAND COUNTY.

OFFICERS.—President, Isaac Welty, Olney; Vice-President, W. E. Alcorn, Olney; Secretary, W. F. Beck, Olney; Treasurer, W. C. Rickard, Olney.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$902 26
" deficit, last report		
" received 1880, fees—gate and entrance		1,639 70
" received 1880, booth rents and permits		790 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		703 00
" paid 1880, in premiums	$2,249 50	
" paid 1880, real estate, buildings, etc	902 26	
" paid 1880, current expenses other than premiums	444 41	
" remaining in treasury	520 29	
" deficit, including mortgage, etc		
Totals	$4,116 46	$4,116 46

ROCK ISLAND COUNTY—Port Byron.

OFFICERS.—President, A. F. Hollister, Port Byron; Vice-President, Samuel Bruner, Port Byron; Secretary, Luther S. Pearsall, Port Byron; Treasurer, Mark Ashdown, Port Byron; Directors, Wm. M. Roberts, Gus. Gwinn, F. S. Gates, Geo. Genung, W. Rice, George Lame, J. Schall, Port Byron.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$32 35	
" received 1880, fees—gate and entrance		$462 95
" received 1880, booth rent and permits		194 50
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		216 70
" paid 1880, in premiums	396 10	
" paid 1880, real estate, buildings, etc	80 00	
" paid 1880, current expenses other than premiums	365 70	
" remaining in treasury		
" deficit, including mortgage, etc		
Totals	$874 15	$874 15

*SANGAMON COUNTY.

OFFICERS.—President, Geo. Pickrell, Wheatfield; Secretary, Phil. M. Springer, Springfield; Treasurer, G. A. VanDuyn, Springfield; Directors, J. B. Perkins, Woodside; Geo. M. Caldwell, Williamsville; J. R. Dunlap, Sherman; J. S. Highmore, Rochester; S. N. Hitt, New Berlin.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		
" received 1880, booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		$795 00
" paid 1880, in premiums		
" paid 1880, real estate, buildings, etc., by Citizens' committee	$635 00	
" paid 1880, current expenses other than premiums	110 00	
" remaining in treasury	50 00	
" deficit, including mortgage, etc		
Totals	$795 00	$795 00

* State Fair held on Society's grounds.

SCHUYLER COUNTY.

OFFICERS.—President, Edwin M. Anderson, Rushville; Vice-President, B. P. Preston, Littleton; Recording Secretary, John C. Scripp, Rushville; Corresponding Secretary, S. B. Montgomery, Rushville; Treasurer, Simon Doyle, Rushville; Executive Committee: Robert McCreery, Ray Station; A. J. Anderson, Huntsville; Perry Logsdon, Rushville; Wm. Reno, Browning.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$756 00	
" received 1880, fees—gate and entrance		$1,938 40
" received 1880, booth rents and permits		426 10
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		306 30
" paid 1880, in premiums	1,632 50	
" paid 1880, real estate, buildings, etc	142 40	
" paid 1880, current expenses other than premiums	828 09	
" remaining in treasury		
" deficit, including mortgage, etc		588 19
Totals	$3,358 99	$3,358 99

SHELBY COUNTY.

OFFICERS.—President, Jno. A. Tackett, Shelbyville; Vice-President, H. H. Funk, Shelbyville; Secretary, Geo. A. Roberts, Shelbyville; Treasurer, Walter C. Headen, Shelbyville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$50 7[illegible]
" deficit, last report		
" received 1880, fees—gate and entrance		1,913 [illegible]
" received 1880, booth rents and permits		327 [illegible]
" received 1880, sale shares of stock		3,195 [illegible]
" received 1880, State appropriation		100 [illegible]
" received 1880, other sources		147 [illegible]
" paid 1880, in premiums	$1,475 50	
" paid 1880, real estate, buildings, etc	3,256 02	
" paid 1880, current expenses other than premiums	709 33	
" remaining in treasury	293 17	
" deficit, including mortgage, etc		
Totals	$5,734 02	$5,734 02

STARK COUNTY.

OFFICERS.—President, Andrew Oliver, Elmira; Vice-President, James M. Rogers, Wyoming; Secretary, Chas. Myers, Toulon; Treasurer, Samuel Burge, Toulon.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$780 75
" deficit, last report		
" received 1880, fees—gate and entrance		$3,146 63
" received 1880, booth rents and permits		484 90
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		6 00
" paid 1880, in premiums	$1,810 75	
" paid 1880, real estate, buildings, etc	450 00	
" paid 1880, current expenses other than premiums	1,676 08	
" remaining in treasury	581 48	
" deficit, including mortgage, etc		
Totals	$4,518 31	$4,518 31

ST. CLAIR COUNTY.

OFFICERS.—President, Joseph Reichert, Freeburg; Vice-President, James H. Atkinson, O'Fallon; Secretary, G. F. Hilgard, Belleville; Treasurer, Frederick H. Pieper, Belleville; General Superintendent, Jefferson Rainey, Belleville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$1,136 25
" deficit, last report	$13,000 00	
" received 1880, fees—gate and entrance		2,115 65
" received 1880, booth rents and permits		1,025 20
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received, 1880, other sources		492 55
" paid 1880, in premiums	1,539 00	
" paid 1880, real estate, buildings, etc	300 00	
" paid 1880, current expenses other than premiums	550 00	
" remaining in treasury		
" deficit, including mortgage, etc		10,620 35
Totals	$15,389 00	$15,389 00

TAZEWELL COUNTY.

Officers.—President, Ira B. Hall, Delavan; Vice-President, Wm. Knott, Delavan; Secretary, George W. Patten, Delavan; Treasurer, R. Frey, Delavan.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$2,064 16	
" received 1880, fees—gate and entrance		$3,428 10
" received 1880, booth rents and permits		547 50
" received 1880, sale shares of stock		1,044 00
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	2,055 00	
" paid 1880, real estate, buildings, etc	478 73	
" paid 1880, current expenses other than premiums	1,149 82	
" remaining in treasury		
" deficit, including mortgage, etc		628 11
Totals	$5,747 71	$5,747 71

UNION COUNTY.

Officers.—President, Josiah Bean, Anna; Secretary, Joseph H. Samson, Jonesboro; Treasurer, Chas. Barringer, Jonesboro.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$23 91
" deficit, last report		
" received 1880, fees—gate and entrance		1,700 00
" received 1880, booth rents and permits		575 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		235 30
" paid 1880, in premiums	$1,698 36	
" paid 1880, real estate, buildings, etc	200 00	
" paid 1808, current expenses other than premiums	760 91	
" remaining in treasury		
" deficit, including mortgage, etc		25 06
Totals	$2,659 27	$2,659 27

VERMILION COUNTY—Catlin.

Officers.—President, J. H. Oakwood, Catlin; Vice-President, W. T. Sandusky, Fairmount; Secretary, W. S. McClenathan, Catlin; Treasurer, Arthur Jones, Catlin; Directors, Wm. Sandusky, Jonathan Gaines, L. W. Green, Indianola; Alonzo Stearnes, Fairmount; W. P. Cannon, Danville; C. M. Baum, Pilot; Guy Sandusky, G. W. Wolfe, Catlin; Thos. Rice, Ridge Farm.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$470 00	
" received 1880, fees—gate and entrance		$2,521 10
" received 1880, booth rents and permits		465 50
" received 1880, sale shares of stock		
" received 1890, State appropriation		
" received 1880, other sources		
" paid 1880, in premiums	2,348 00	
" paid 1880, real estate, buildings, etc	224 09	
" paid 1880, current expenses other than premiums	495 43	
" remaining in treasury		
" deficit, including mortgage, etc		550 92
Totals	$3,537 52	$3,537 52

VERMILION COUNTY—Danville..

OFFICERS.—President, L. T. Dickson, Danville; Vice-President, F. M. Rankin, Muncie; Treasurer, C. K. Myers, Danville; Secretary, W. M. Bandy, Danville.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$346 43	
" received 1880, fees—gate and entrance		$2,121 00
" received 1880, booth rents and permits		879 07
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		
" paid 1880, in premiums	1,815 45	
" paid 1880, real estate, buildings, etc	833 38	
" paid 1880, current expenses other than premiums	4 81	
" remaining in treasury		
" deficit, including mortgage		
Totals	$3,000 07	$3,000 07

VERMILION COUNTY—Hoopeston.

OFFICERS.—President, J. A. Cunningham, Hoopeston; Vice-President, John Greer, Hoopeston; Secretary, Wm. Glaze, Hoopeston; Treasurer, A. H. Trego, Hoopeston.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$230 17	
" received 1880, fees—gate and entrance		$2,910 66
" received 1880, booth rents and permits		956 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		97 40
" paid 1880, in premiums	1,909 00	
" paid 1880, real estate, buildings, etc	1,925 43	
" paid 1880, current expenses other than premiums	849 46	
" remaining in treasury		
" deficit, including mortgage, etc		950 00
Totals	$4,914 06	$4,914 06

WAYNE COUNTY.

OFFICERS.—President, J. T. Fleming, Fairfield; Vice-President, Wm. H. Robinson, Fairfield; Secretary, N. E. Roberts, Fairfield; Treasurer, W. J. Sailor, Fairfield; General Superintendent, Solomon Koontz, Fairfield; Directors, Jas. Shaeffer, Solomon Koontz, O. P. Patterson, Wm. Shaeffer, W. M. Murphy, Ewing Young, N. C. Alexander, G. M. Davis, T. L. Cooper, J. L. Handley, John Keen, Jr.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$1,216 00	
" received 1880, fees—gate and entrance		$851 48
" received 1880, booth rents and permits		153 35
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	884 50	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	232 40	
" remaining in treasury		
" deficit, including mortgage, etc		1,228 07
Totals	$2,332 90	$2,332 90

WHITE COUNTY.

OFFICERS.—President, J. R. Williams, Carmi; Vice-President, Elvis Stinnett, Carmi; Secretary, R. L. Organ, Carmi; Treasurer, J. I. McClintock, Carmi.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$309 98
" deficit, last report	$1,690 02	
" received 1880, fees—gate and entrance		4,500 25
" received 1880, booth rents and permits		1,041 03
" received 1880, sale shares of stock		426 00
" received 1880, State appropriation		100 00
" received 1880, other sources		707 00
" paid 1880, in premiums	2,969 50	
" paid 1880, real estate, buildings, etc	3,040 27	
" paid 1880, current expenses other than premiums	1,054 32	
" remaining in treasury		
" deficit, including mortgage, etc		1,659 85
Totals	$8,744 11	$8,744 11

WHITESIDE COUNTY—Sterling.

OFFICERS.—President, A. A. Terrell, Sterling; Vice-President, S. J. Baird, Sterling; Secretary, W. F. Eastman, Sterling; Treasurer, J. W. Alexander, Sterling.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$1,780 00	
" received 1880, fees—gate and entrance		$7,958 34
" received 1880, booth rents and permits		601 31
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		260 00
" paid 1880, in premiums	1,456 11	
" paid 1880, real estate, buildings, etc	569 77	
" paid 1880, current expenses other than premiums	5,649 17	
" remaining in treasury		
" deficit, including mortgage, etc		585 40
Totals	$9,455 05	$9,455 05

WHITESIDE COUNTY—Morrison.

OFFICERS.—President, Robert E. Logan, Morrison; Vice-President, Richard A. Garrison, Morrison; Secretary, Ed. J. Conger, Morrison; Treasurer, A. C. McAllister, Morrison.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$743 33
" deficit, last report		
" received 1880, fees—gate and entrance		2,134 50
" received 1880, booth rents and permits		329 95
" received 1880, sale shares of stock		
" received 1880, State appropriation		50 00
" received 1880, other sources		176 75
" paid 1880, in premiums	$1,468 00	
" paid 1880, real estate, buildings, etc	990 02	
" paid 1880, current expenses other than premiums	1,554 54	
" remaining in treasury		
" deficit, including mortgage, etc		578 03
Totals	$4,012 56	$4,012 56

WHITESIDE COUNTY—Albany.

OFFICERS.—President, E. H. Nevitt, Albany; Vice-President, D. J. Parker, Albany; Secretary, J. F. Happer, Albany; Treasurer, Ezekiel Olds, Albany; Directors, J. W. Dinneen, Albany; Amos Crosby, Cordova; J. B. Reams, R. R. Murphy, Garden Plain.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$12 12
" deficit, last report	$25 00	
" received 1880, fees—gate and entrance		432 25
" received 1880, booth rents and permits		160 30
" received 1880, sale shares of stock		
" received 1880, State appropriation		
" received 1880, other sources		163 60
" paid 1880, in premiums	248 00	
" paid 1880, real estate, buildings, etc	334 76	
" paid 1880, current expenses other than premiums	505 87	
" remaining in treasury	10 34	
" deficit, including mortgage, etc		355 20
Totals	$1,123 97	$1,123 97

WILL COUNTY.

OFFICERS.—President, A. Allen Francis, New Lenox; Secretary, W. T. Nelson, Wilmington; Treasurer, E. H. Akin, Joliet; Directors, James L. Owen, Mokena; L. E. Ingalls, G. H. Munroe, Jacob Adler, Jacob A. Henry, Joliet; Selah Knapp, Lockport; Freeman Gay, Elwood; C. E. Kircheval, New Lenox; Charles Snoad, Joliet.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report	$13,200 00	
" received 1880, fees—gate and entrance		$1,944 11
" received 1880, booth rents and permits		224 20
" received 1880, sale shares of stock		891 36
" received 1880, State appropriation		100 00
" received 1880, other sources		1,139 00
" paid 1880, in premiums	470 00	
" paid 1880, real estate, buildings, etc	300 00	
" paid 1880, current expenses other than premiums	3,135 67	
" remaining in treasury		
" deficit, including mortgage, etc		12,807 00
Totals	$17,105 67	$17,105 67

WILLIAMSON COUNTY.

Officers.—President, R. M. Hundley, Marion; Vice-President, John Goodall, Marion; Secretary, L. A. Goddard, Marion; Assistant Secretary, W. H. Eubanks, Marion; Treasurer, Zack Hudgens, Marion; Directors, Thomas Davis, M. E. Campbell, J. B. Roberts, Marion; J. C. Miller, Bainbridge; W. T. Newton, Lake Creek.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$288 56
" deficit, last report		
" received 1880, fees—gate and entrance		1,285 85
" received 1880, booth rents and permits		370 00
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		
" paid 1880, in premiums	$1,012 00	
" paid 1880, real estate, buildings, etc	618 24	
" paid 1880, current expenses other than premiums	380 00	
" remaining in treasury	34 17	
" deficit, including mortgage, etc		
Totals	$2,044 41	$2,044 41

WINNEBAGO COUNTY.

Officers.—President, S. P. Crawford, Rockford; Vice-President, John Lake, Rockford; Secretary, Henry P. Kimball, Rockford; Treasurer, Horace Brown, Rockford; Directors, L. B. Williams, Harrison; Laurence McDonald, Pecatonica; John Smith, Argyle; Peter Mabie, Harlem; G. C. Cleaveland, Cherry Valley; Ashley Knapp, Burritt; H. W. Carpenter, J. C. Chappell, C. O. Upton, Rockford.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$17 66
" deficit, last report	$8,223 75	
" received 1880, fees—gate and entrance		4,863 40
" received 1880, booth rents and permits		496 10
" received 1880, sale shares of stock		
" received 1880, State appropriation		100 00
" received 1880, other sources		227 62
" paid 1880, in premiums	1,999 50	
" paid 1880, real estate, buildings, etc		
" paid 1880, current expenses other than premiums	2,136 99	
" remaining in treasury	1,568 29	
" deficit, including mortgage, etc		8,223 75
Totals	$13,928 53	$13,928 53

WOODFORD COUNTY.

OFFICERS.—President, Edwin Hodgson, El Paso; Vice-President, John L. Patton, Panola; Secretary, David A. Espey, El Paso; Treasurer, F. T. Waite, Panola.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report		
" received 1880, fees—gate and entrance		$2,323 25
" received 1880, booth rents and permits		261 90
" received 1880, sale shares of stock		2,179 00
" received 1880, State appropriation		
" received 1880, other sources		297 00
" paid 1880, in premiums	$1,486 75	
" paid 1880, real estate, buildings, etc	4,600 00	
" paid 1880, current expenses other than premiums	700 00	
" remaining in treasury	127 40	
" deficit, including mortgage, etc		1,853 00
Totals	$6,914 15	$6,914 15

ILLINOIS STATE FAIR.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		$2,974 39
" deficit, last report, including debt covered by mortgage		
" received in 1880, fees—gate and entrance		15,674 00
" booth rents and permits		3,379 37
" received 1880, sale shares of stock		
" received 1880, State appropriation		3,000 00
" received 1880, other sources		210 00
" paid 1880, in premiums	$15,432 76	
" paid 1880, for real estate, buildings and permanent improv.		
" paid 1880, for current expenses other than premiums	10,071 82	
" remaining in treasury		
" deficit, including debt covered by mortgage		266 82
Totals	$25,504 58	$25,504 58

FAT STOCK SHOW.

FINANCIAL EXHIBIT FOR 1880.

Amount in treasury, last report		
" deficit, last report, including debt covered by mortgage		
" received 1880, fees—gate and entrance		$2,598 39
" booth rents and permits		
" received 1880, sale shares of stock		
" received 1880, premium returned		25 00
" received 1880, other sources		3,295 00
" paid 1880, in premiums	$2,450 76	
" paid 1880, for real estate, buildings and permanent improv.		
" paid 1880, for current expenses other than premiums	4,045 81	
" remaining in treasury		
" deficit		578 18
Totals	$6,496 57	$6,496 57

ILLINOIS STATE FAIR.

REPORT OF EXHIBITION FOR 1880.

DEPARTMENTS.	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department
A—Cattle	314	$3,570 00	$3,060 00
B—Horses and Equestrianism	595	3,666 00	3,266 00
B—Mules and Asses	21	335 00	195 00
C—Sheep	370	1,290 00	1,265 00
D—Hogs	439	1,475 00	1,425 00
E—Poultry	352	817 00	447 00
F—Mechanic Arts—Light machines, agricultural implements, stoves, castings, worked metals, household furniture, manufactures of various kinds, engines, machinery, etc.; vehicles, sewing and knitting machines, etc	487	180 00	160 00
G—Farm Products—Grain, seeds, vegetables, butter, cheese, cakes, etc	580	726 00	611 00
H—Horticulture and Floriculture—Trees, fruits, flowers, plants, canned and preserved fruits, jellies, pickles, etc	505	1,374 00	1,022 00
I—Fine Arts—Musical instruments, sculpture, painting, drawing, wax, feathers, hair work, etc	168	91 00	91 00
K—Textile Fabrics—Mill fabrics, household fabrics, needle work	949	565 00	523 00
L—Natural History—Botany, minerology, conchology, entomology, Ichthyology, herpetology	22	235 00	235 00
M—Military Prize Drill			
N—Education	482	322 00	283 00
Speed Ring	48	2,340 00	2,220 00
Miscellaneous—For articles not proper to be classified in any of the above departments			639 76
Total	5332	$16,986 00	$15,422 76

FAT STOCK SHOW.

REPORT OF EXHIBITION FOR 1880.

DEPARTMENTS.	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department
A—Cattle	267	$2,125 00	$1,485 76
B—Horses	10		
B—Mules and Asses			
C—Sheep	168	680 00	540 00
D—Hogs	67	550 00	365 00
E—Poultry	39	90 00	60 00
Total	551	$3,445 00	$2,450 76

JAS. R. SCOTT
President State Board of Agriculture.

S. D. FISHER,
Secretary.

ILLINOIS AGRICULTURAL FAIRS—1880.

Table showing number of Entries, amount of Premiums Offered and amount of Premiums Paid by each Association.

LIVE-STOCK EXHIBIT.

Counties.	Location of Fair.	Cattle.			Horses and Equestrianism.			Mules and Asses.			Sheep.			Hogs.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Adams	CampPoint	76	$583 00	$348 00	362	$612 00	$573 00	14	$64 00	$41 00	72	$119 00	$116 00	153	$286 00	$278 00
Alexander																
Bond																
Boone	Belvidere	40	326 00	30 40	78	286 00	66 80	1	10 00	1 60	44	72 00	21 60	46	152 00	41 60
Brown	Mt. Sterling	41	184 50	149 00	158	619 50	410 50	15	70 50	35 00	56	106 00	78 00	100	245 00	234 00
Bureau	Princeton	83	544 00	409 00	127	627 00	434 00	2	27 00	18 00	34	134 00	113 00	101	325 00	258 00
Calhoun																
Carroll	Mt. Carroll	62	189 75	153 50	99	319 50	183 75	3	17 50	8 25	18	70 50	37 00	19	178 25	61 75
Cass	Virginia	27	294 50	160 00	132	471 50	356 15	7	49 50	24 00	17	99 00	50 25	46	226 50	136 50
Champaign	Champaign	25	148 00	89 00	160	403 00	297 00	1	19 00	5 00	24	75 00	45 00	42	69 00	53 00
Christian																
Clark	Marshall	8	147 00	62 00	26	292 00	139 00	9	87 00	36 00	14	47 00	19 00	13	60 00	37 00
Clay																
Clinton																
Coles	Charleston	67	504 00	343 00	227	481 00	445 50	9	55 00	47 50	23	90 00	61 50	61	168 00	160 00
Cook																
Crawford	Robinson	24	255 00	255 00	48	140 00	140 00	13	64 00	64 00	26	113 00	83 60	38	215 00	85 00
Cumberland	Prairie City	33	244 00	163 00	93	279 00	264 00	4	33 00	16 00	6	43 00	13 00	12	76 00	35 00
DeKalb	Sandwich	68	262 00	134 00	72	262 00	182 00	4	26 00	13 00	28	71 50	32 00	22	116 00	42 00
DeKalb	Sycamore	38	496 00	132 00	122	252 00	207 00	5	18 00	15 00	21	93 00	43 00	31	78 00	47 00
DeWitt	Clinton	23	238 00	61 00	126	283 00	205 50	11	89 00	34 00	30	64 00	42 50	33	86 00	30 00
Douglas	Tuscola	6	203 00	21 15	148	635 00	232 45	6	78 00	18 60		26 00		45	130 00	48 45
DuPage	Wheaton	35	201 00	100 00	50	205 00	130 00	3	18 00	15 00	20	63 00	33 00	7	80 00	26 00
Edgar	Paris	63	464 00	448 00	235	619 00	526 00	10	53 00	46 00	4	30 00	30 00	37	162 00	162 00
Edwards	Albion	48	252 00	155 00	152	481 00	422 00	13	41 50	26 50	13	89 00	33 00	25	176 50	83 00
Effingham	Effingham	9	63 00	42 00	28	386 00	137 00				18	170 00	64 00	2	17 00	11 00
Fayette	Vandalia	76	134 50	128 50	76	174 00	138 50	6	42 00	20 00	22	71 00	51 00	27	75 00	41 00

Live-Stock Exhibit—Continued.

Counties.	Location of Fair.	Cattle.			Horses and Equestrianism.			Mules and Asses.			Sheep.			Hogs.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Ford	Paxton	58	$478 00	$123 00	74	$417 00	$118 07	3	$23 00			$8 00		63	$217 00	
Franklin	Benton	43	133 50	89 50	144	1,084 00	563 50	26	130 50	$90 00	12	23 00	$23 00	16	42 50	$32 50
Fulton	Canton	38	594 00	117 00	239	539 00	394 00	6	83 00	30 00	69	124 00	113 00	78	289 00	92 00
Fulton	Avon	56	545 00	266 00	239	453 00	355 00	3	17 00	17 00	61	88 00	74 00	170	248 00	226 00
Gallatin	Shawneeto'n	27	227 00	156 00	100	635 00	385 00	13	78 00	49 50	12	53 00	25 00	25	138 00	87 00
Greene	Carrollton	22	210 00	80 00	223	648 00	532 00	21	60 00	55 00	38	104 00	65 00	89	155 00	100 00
Grundy																
Hamilton	M'Leansb'ro	33	531 50	126 00	118	382 50	224 50	16	37 00	30 00	23	36 00	29 00	21	96 50	33 00
Hancock																
Hardin	Elizabetht'n	12	75 00	32 50	35	185 50	145 50	13	56 00	44 00		14 25		4	21 50	12 00
Henderson	Biggsville	27	375 00	110 00	150	490 00	416 00	5	29 00	14 00	17	47 50	36 50	39	110 00	110 00
Henry	Cambridge	66	546 00	294 00	55	435 00	331 00				16	90 00	57 00	31	126 00	80 00
Iroquois	Onarga	33	338 00	145 00	99	300 00	232 00	6	50 00	25 00		8 00		32	123 00	50 00
Iroquois	Watseka	61	289 00	200 00	153	480 00	339 00				19	51 00	38 00	64	126 00	98 00
Jackson	Murph'sboro	7	153 00	27 00	33	270 00	109 00	7	122 50	20 00		39 00			*65 00	
Jasper	Newton	44	392 00	151 00	91	403 00	245 00	2	50 00	6 00	36	140 00	82 00	53	170 00	115 50
Jefferson	Mt. Vernon	62	237 00	195 00	156	432 00	372 00	26	113 00	77 00	58	119 00	116 00	62	127 00	110 00
Jersey	Jerseyville	52	520 00	410 00	291	1,013 00	958 00	16	90 00	60 00	65	192 00	188 00	69	271 00	236 00
JoDaviess	Galena	60	163 00	100 80	57	218 00	156 15	12	6 00	5 40	40	50 00	42 75	40	236 00	54 00
JoDaviess	Warren	47	159 50	131 50	37	132 00	92 50				17	24 00	24 00	4	34 50	13 00
Johnson																
Kane	Elgin	61	580 00	186 00	75	238 00	131 00				15	188 00	56 00	22	222 00	54 00
Kankakee	Kankakee	27	201 00	123 00	175	433 00	340 00	11	37 00	33 00	9	68 00	36 00	26	207 00	68 00
Kendall	Bristol	62	224 00		95	268 00		2	24 50		11	23 00		33	212 00	
Knox	Knoxville	50	479 00	382 00	246	531 00	400 00	20	78 00	60 00	140	123 00	118 00	109	216 00	177 00
Lake	Libertyville	26	312 00	59 00	64	281 00	100 00				20	68 00	28 75	16	58 00	13 50
Lake	Waukegan	112	814 00	237 50	124	396 00	245 50				73	216 00	174 50	43	225 00	111 00
LaSalle	Ottawa	27	281 00	147 00	133	680 00	249 00	3	63 00	8 00	40	90 00	55 00	35	111 00	55 00
Lawrence																
Lee																
Livingston	Fairbury	88	872 00	595 00	187	799 00	474 00	10	47 00	25 00	25	172 00	72 00	37	161 00	92 00
Logan	Lincoln	60	582 00	254 60	313	748 00	383 00	10	64 00	32 50	64	122 00	57 00	102	236 00	121 00
Logan	Atlanta	84	476 00	245 00	261	476 50	401 00	7	42 00	34 00	44	72 00	72 00	37	128 00	99 00
Macon	Decatur	62	629 00	244 00	86	607 00	398 00				24	129 00	70 00	41	190 50	145 50

Macoupin	Carlinville	18	180 00	180 00	133	475 00	474 00	3	30 00	25 00	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Madison																	
Marion																	
Marshall																	
Mason	Havana	19	276 00	94 00	35	361 00	169 00		98 00		6	99 00	18 00	11	156 00	46 00
Massac	Metropolis	3	50 00	17 00	52	171 50	143 00	9	48 00	22 50	2	4 50	4 50	9	25 00	22 50
McDonough	Macomb	42	256 00	184 00	162	276 50	227 50	6	57 00	19 00	35	55 50	55 50	119	235 00	208 00
McHenry	Woodstock	63	432 00	82 00	101	254 00	101 50	4	44 00	5 50	25	160 00	47 00	21	127 00	21 00
McHenry	Marengo	112	293 00	145 00	99	210 00	128 00	3	14 00	7 00	30	74 00	38 00	35	138 00	71 00
McLean	Bloomington	30	412 00	231 00	185	630 00	462 00	18	68 00	33 00	38	68 00	58 00	30	178 00	63 00
Menard	Petersburg	10	200 00	10 00	50	325 00	65 00				29	144 00	45 00	30	240 00	35 00
Mercer	Aledo	68	397 00	352 00	197	633 00	582 00	8	48 00	22 00	53	164 00	142 00	108	242 00	230 00
Monroe																	
Montgomery																	
Morgan	Jacksonville	32	426 25	357 50	134	670 00	578 97	30	85 50	75 50	74	231 00	231 00	86	436 00	368 5[illegible]
Moultrie	Sullivan	49	266 00	170 40	81	362 00	248 00	13	58 00	38 40	30	56 00	40 80	32	141 00	64 00
Ogle	Oregon	21	419 50	75 00	88	366 00	240 00		18 50		13	63 00	29 00	15	57 00	24 00
Ogle	Rochelle	104	440 00	278 00	169	450 00	377 00	4	36 00	14 00	48	178 00	108 00	62	137 00	124 00
Peoria																	
Perry	Pinckn'yville	11	128 00	38 00	63	455 00	241 00	5	59 00	22 00	7	30 00	14 00	24	74 00	41 00
Piatt	Monticello	57	290 50	225 00	85	360 00	287 50	4	27 50	7 50	15	48 00	42 00	18	55 00	40 00
Pike	Pittsfield	28	233 00	194 00	93	415 00	370 00	13	78 00	63 00	32	124 00	110 00	52	190 00	171 00
Pope	Golconda	26	66 00	61 00	50	172 50	125 50	30	73 50	65 00	29	53 50	53 50	25	47 00	47 00
Pulaski																	
Putnam																	
Randolph	Sparta	30	475 00	141 00	138	1,032 00	942 00				25	164 00	64 00	41	321 00	174 00
Randolph	Chester	29	380 00	166 00	38	340 00	206 00	5	104 00	41 00	17	94 00	61 00	19	146 00	63 00
Richland	Olney	88	616 00	370 00	81	313 00	253 00	6	61 00	26 00	20	78 00	58 00	70	360 00	212 00
Rock Island	Port Byron	33	80 00	50 00	61	105 00	76 00	2	8 00	3 00	10	12 00	12 00	20	70 00	21 00
Rock Island																	
Saline																	
Sangamon																	
Schuyler	Rushville	64	313 50	274 50	169	527 00	398 50	12	36 00	27 00	55	73 00	63 50	28	117 00	81 50
Scott																	
Shelby	Shelbyville	70	383 00	360 00	93	296 00	249 00	11	58 00	40 00	58	104 00	101 00	52	102 00	99 00
Stark	Toulon	59	761 00	225 00	167	482 00	407 00	11	79 50	52 00	76	177 00	137 00	105	235 00	217 00
St. Clair	Belleville	41	336 00	136 00	110	230 00	188 00	21	90 00	65 00	65	60 00	44 00	43	130 00	77 00
Stephenson																	
Tazewell	Delavan	66	471 00	322 00	425	707 00	559 00	4	60 00	22 00	78	87 00	82 00	73	335 00	234 00
Union	Jonesboro	87	304 25	216 75	97	406 00	368 50	38	186 00	115 00	35	87 90	73 40	28	102 00	89 50
Vermilion	Catlin	47	470 00	380 00	178	580 00	520 00	7	62 00	37 00	56	106 00	106 00	40	180 00	170 00
Vermilion	Danville	24	390 00	201 00	156	402 00	347 00	4	46 00	16 00	49	119 00	90 00	35	166 00	138 00
Vermilion	Hoopeston	70	587 00	461 00	226	530 00	393 00	21	50 00	44 00	43	64 00	46 00	103	142 00	142 00
Wabash																	
Warren																	
Washington																	
Wayne	Fairfield	23	136 00	101 00	94	407 00	292 00	6	44 00	28 00	21	80 00	50 00	31	139 50	77 00
White	Carmi	83	1,044 00	399 00	165	551 00	404 00	16	55 00	53 00	23	188 00	49 00	42	218 00	99 00
Whiteside	Sterling	82	356 00	211 50	89	228 00	134 50	4			47	115 00	89 00	40	106 00	99 00
Whiteside	Morrison	84	344 00	215 00	169	228 00	205 00	6	19 00	14 00	77	99 00	80 00	69	148 00	120 00
Whiteside	Albany	18	150 00	48 00	45	92 00	53 00					18 00		4	50 00	11 00
Will	Joliet	39	403 00	46 46	154	542 00	100 90	1	57 00	2 50	25	126 00	16 81	56	313 00	51 07

Live-Stock Exhibit.—Continued.

Counties.	Location of Fair.	Cattle.			Horses and Equestrianism.			Mules and Asses.			Sheep.			Hogs.		
		Number of entries	Amount of premiums offered.	Amount of premiums paid	Number of entries	Amount of premiums offered.	Amount of premiums paid	Number of entries	Amount of premiums offered.	Amount of premiums paid	Number of entries	Amount of premiums offered.	Amount of premiums paid	Number of entries	Amount of premiums offered.	Amount of premiums paid
Williamson	Marion	52	$261 00	$160 00	66	$274 00	$241 00	28	$116 00	$98 00	20	$48 00	$48 00	17	$82 00	$48 00
Winnebago	Rockford	98	469 00	268 00	143	411 00	261 00	1	12 00	3 00	76	96 00	90 00	59	159 00	116 00
Woodford	El Paso	92	420 00	281 00	184	611 00	337 00	12	47 00	26 00	23	105 00	44 00	37	121 00	25 00
State Fair	Springfield	314	3,570 00	3,060 00	595	3,660 00	3,256 00	21	335 00	195 00	370	1,290 00	1,265 00	439	1,475 00	1,425 00
Ft. Stock Show	Chicago	267	2,125 00	1,485 76	10	.....	.....	.....	.....	.....	168	680 00	540 00	67	550 00	365 00
Totals	.....	4,812	$36,765 75	$20,889 82	12,022	$41,352 50	$29,531 24	766	$4,481 00	$2,526 75	3,390	$9,919 15	$7,025 36	4,541	$15,914 25	$10,166 37

EXHIBIT ILLINOIS AGRICULTURAL FAIRS—1880.

Counties.	Location of Fair.	Poultry.			Mechanic Arts.			Farm Products.			Horticulture and Floriculture.			Fine Arts.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Adams	Camp Point	118	$72 50	$58 00	70	$76 00	$66 00	476	$180 25	$155 25	940	$230 00	$226 25	100	$84 50	$61 00
Alexander																
Bond																
Boone	Belvidere	25	76 50	9 80	87	239 00	55 80	73	86 00	16 60	47	71 50	19 80	43	59 00	16 00
Brown	Mt. Sterling	76	50 00	36 00	73	99 00	46 00	142	93 00	55 75	369	113 00	99 75	42	39 00	22 50
Bureau	Princeton	23	93 00	19 50	48	86 00	35 00	87	160 00	121 00	349	230 50	193 50	47	73 50	43 50
Calhoun																
Carroll	Mt. Carroll	10	30 50	24 50	35	70 00	22 00	110	39 75	31 75	101	50 25	44 25	39	43 00	30 25
Cass	Virginia	11	33 00	11 25	16	76 00	32 65	58	63 75	30 15	213	108 00	78 00	44	40 50	24 40
Champaign	Champaign	53	45 00	26 00	87	91 00	70 00	77	52 00	42 00	56	98 00	82 00	31	31 00	24 00
Christian																
Clark	Marshall	33	45 00	36 00	5			176	84 00	64 00				54	45 00	11 00
Clay																
Clinton																
Coles	Charleston	29	69 00	44 00	34	189 00	38 00	135	110 00	66 00	314	138 00	131 50	45	40 00	30 00
Cook																
Crawford	Robinson	17	20 00	9 50	3	103 50	16 00	58	49 50	49 55	250	167 00	157 00	30	50 00	50 00
Cumberland	Prairie City							54	70 00	34 75	13	19 00	7 00			
DeKalb	Sandwich	52	49 50	28 00	65	118 50	67 00	33	42 60	15 00	91	78 50	48 25	61	54 00	25 10
DeKalb	Sycamore	10	17 00	8 00	23	22 00	19 00	65	81 00	56 00	5	17 00	8 00			
DeWitt	Clinton	50	37 00	26 00	11	37 00	24 00	116	51 00	39 50	328	75 00	83 00	22	32 00	10 00
Douglas	Tuscola	15	34 00	10 15	28	142 00	26 75	125	120 50	80 65	62	116 50	73 85	4	9 00	1 65
DuPage	Wheaton	17	65 75	13 00	18	29 00	18 00	61	80 50	42 00	11	17 00	9 00	25	47 00	26 00
Edgar	Paris	168	189 50	167 00	85	128 00	92 00	226	110 00	103 00	1,004	356 00	354 50	69	88 00	72 00
Edwards	Albion	22	19 50	12 00	37	144 25	85 50	172	125 50	98 25	52	37 50	20 50	3	15 00	2 50
Effingham	Effingham	9	100 00	9 00				25	250 00	39 00	86	200 00	60 00	16		3 00
Fayette	Vandalia	19	15 00	12 00	74	38 50	30 00	48	62 50	37 50	350	142 00	121 50	47	25 00	21 00
Ford	Paxton	16	29 00		11	15 00		52	60 00		129	75 00		32	25 00	
Franklin	Benton	16	10 00	10 00	1			45	18 00	18 00	134	22 00	22 00			
Fulton	Canton	69	51 50	35 50	61	361 00	71 00	374	198 50	154 00	540	263 50	179 00	38	96 00	68 00
Fulton	Avon	89	58 00	46 00	31	82 00	34 00	875	132 00	117 00	498	133 00	100 00			
Gallatin	Shawn'etown	38	92 00	39 00	4	99 00	9 00	69	79 00	26 50	105	142 00	54 00	12	23 00	10 00
Greene	Carrollton	8	79 50	54 00	114	198 00	139 00	183	103 00	82 00	544	125 00	117 00	83	102 00	67 00
Grundy																
Hamilton	McLeansboro	25	52 50	13 00	33	132 50	46 50	47	129 25	57 25	87	60 00	19 00	24	37 00	31 00
Hancock																
Hardin	Elizabethto'n	7	18 50	7 75	15	39 00	15 00	71	82 00	47 65	66	39 00	32 50		9 45	

Exhibit Illinois Agricultural Fairs—Continued.

Counties.	Location of Fair.	Poultry.			Mechanic Arts.			Farm Products.			Horticulture and Floriculture.			Fine Arts.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Henderson	Biggsville	39	$25 00	$31 50	23	$25 00	$21 00	181	$56 50	$64 75	534	$96 00	$122 75	16	$16 00	$8 00
Henry	Cambridge	57	86 50	46 00	13	68 00	42 00	266	129 00	121 00	480	196 50	180 00			
Iroquois	Onarga	19	42 00	14 50	16	92 00	11 00	56	98 25	49 00	149	149 50	94 50	2	26 00	2 00
Iroquois	Watseka	40	85 00	50 00				50	82 00	65 00	131	75 00	43 00			
Jackson	Murphysboro	12	25 50	5 00	6	120 00	6 00	78	60 00	30 55	86	56 10	18 05	2		
Jasper	Newton	19	26 00	10 25				65	59 00	31 50	202	121 00	88 00	43	83 00	23 00
Jefferson	Mt. Vernon	28	24 75	14 00	43	35 00	6 00	195	186 50	123 50	25	66 50	39 00	21	43 50	19 50
Jersey	Jerseyville	36	229 00	44 00	138	362 00	286 00	264	192 00	178 00	569	221 00	198 00	160	262 00	256 00
JoDaviess	Galena	22		9 00	75	42 00	35 10	93	151 00	109 75	33	86 00	40 50			
JoDaviess	Warren	12	88 50	8 55	67	51 50	18 00	34	18 00	9 00	42	11 50	9 45	25	26 50	13 50
Johnson																
Kane	Elgin	18	52 50	16 00	53			173	220 00	216 00	84	196 00	43 00	22	71 00	27 00
Kankakee	Kankakee	85	68 25	33 00	19	98 00	53 00	157	154 50	106 00	31	67 50	66 50	16	30 50	13 00
Kendall	Bristol	7	49 75		45	120 00		81	88 50		74	44 75		90	52 50	
Knox	Knoxville	160	81 00	81 00	93	197 00	125 00	340	112 00	102 00	350	230 00	90 00	30	107 00	40 00
Lake	Libertyville	7	30 50	5 00	34	21 00	5 00	35	31 50	10 00	32	38 50	10 00	13	12 50	5 00
Lake	Waukegan	147	264 00	90 50	63	105 00	34 00	345	171 00	50 00	184	76 20	59 20	141	82 00	56 00
LaSalle	Ottawa	42	239 00	24 00	329	70 00		320	480 00	116 00	119	336 00	151 00	40	10 09	38 00
Lawrence																
Lee																
Livingston	Fairbury	50	81 00	27 00	86	137 00	94 00	244	199 75	146 25	543	184 75	162 25	54	51 75	38 50
Logan	Lincoln	162	216 50	72 75	146	134 50	46 75	318	155 50	59 12	1,181	160 25	82 37	114	123 50	39 33
Logan	Atlanta	60	41 00	35 50	64	57 50	32 50	162	71 50	51 25	392	66 50	55 75	42	47 00	29 00
Macon	Decatur	88	90 00	63 00	27	70 00	65 00	116	171 00	125 00						
Macoupin	Carlinville	67	93 00	68 00	57	253 00	93 00	90	119 50	94 50	29	61 50	49 75	54	50 25	41 75
Madison																
Marion																
Marshall																
Mason	Havana	32	41 00	35 00	52	51 00	32 00	108	122 00	67 00	272	92 00	83 00	3	25 00	3 00
Massac	Metropolis	4	14 00	3 00		78 00	1 00	47	98 50	61 50	57	32 00	19 50			
McDonough	Macomb	119	104 25	62 25	53	212 00	117 00	345	96 75	85 50	35	59 25	37 50	35	35 50	23 00
McHenry	Woodstock	46	34 50	9 50	9			213	184 00	90 25				79	69 00	19 25
McHenry	Marengo	22	21 75	6 25	62	44 00	19 00	162	88 00	57 25	224	93 75	66 50	38	24 50	13 00
McLean	Bloomington	38	113 00	63 00	84			45	64 00	57 00	34	71 00	60 00			
Menard	Petersburg	75	94 00	10 00	30	75 00	8 33	80	30 00	20 00	105	190 00	20 00	70	100 00	10 00
Mercer	Aledo	74	84 00	61 00	97	108 00	44 00	248	142 00	142 00	871	250 00	250 00	53	110 00	68 88

Monroe																	
Montgomery																	
Morgan	Jacksonville	109	174 00	122 50	64	241 50	84 00	308	155 00	116 50	867	251 00	233 60	89	128 25	86 00
Moultrie	Sullivan	12	58 00	17 60	10	49 00	7 20	50	30 00	16 00	160	134 00	90 40	15	39 00	15 20
Ogle	Oregon	28	40 50	22 50	23	50 50	6 00	51	99 25	20 50	66	59 25	54 50	12	42 75	11 50
Ogle	Rochelle	67	44 00	31 00	24	13 00	13 00	24	16 50	1 35	187	106 50	72 00	33	31 50	22 00
Peoria																
Perry	Pinckneyville	6	21 00	9 00	11			65	59 50	38 00	85	85 00	24 00	7	6 00	2 50
Piatt	Monticello	59	107 75	21 50	12	19 00	4 00	61	61 00	43 00	88	69 00	30 00	8	11 50	4 50
Pike	Pittsfield	42	48 00	38 00	41	10 00	10 00	52	48 00	36 00	36	33 00	30 00	43	70 00	64 00
Pope	Golconda	9	6 00	6 00	44	50 00	10 00	136	72 50	68 50	86	51 00	47 50	11	6 00	3 10
Pulaski																
Putnam																
Randolph	Sparta	16	31 50	8 50	21	93 50	38 00	76	51 50	29 25	495	125 25	128 50			
Randolph	Chester	17	47 00	30 00	54	78 00	60 00	215	103 50	71 25	343	101 25	93 50	26	53 50	35 25
Richland	Olney	67	92 00	53 50	15	170 00	66 00	66	132 00	46 50	191	152 00	67 00	13	25 00	18 50
Rock Island		20	24 00	10 50	35	40 00	12 00	88	75 00	48 00	60	59 00	34 00	15	18 00	8 00
Rock Island																
Saline																
Sangamon																
Schuyler	Rushville	30	61 50	23 50	17	132 50	38 50	112	54 00	42 50	470	140 50	129 00			
Scott																
Shelby	Shelbyville	52	64 00	57 00	19	76 00	16 00	63	34 50	32 00	100	81 50	77 50	17	33 00	17 00
Stark	Toulon	135	124 50	76 00	111	42 00	28 00	323	142 50	117 00	776	178 75	116 00	125	93 75	75 75
St. Clair	Belleville	102	30 00	44 00	228	90 00	83 00	229	130 00	70 00	340	118 00	100 00	55	10 00	8 00
Stephenson																
Tazewell	Delavan	94	81 75	65 25	116	101 00	80 00	193	128 00	83 50	309	87 00	62 75	117	66 25	35 75
Union	Jonesboro	63	36 00	28 50	76	298 75	197 00	167	95 25	87 00	79	157 50	141 50	233	160 75	135 00
Vermilion	Catlin	22	15 00	10 50	68	129 00	64 50	72	64 50	53 50	165	112 50	111 50	36	36 00	34 00
Vermilion	Danville	49	271 00	157 00	37	142 00	57 45	43	47 00	26 00	159	71 00	40 00	51	52 00	42 00
Vermilion	Hoopeston	55	86 00	46 00	38	88 00	15 00	238	87 00	75 00	281	89 00	98 00	9	24 00	4 00
Wabash																
Warren																
Washington																
Wayne	Fairfield	1	50	50				54	49 25	27 50	127	102 50	48 25			
White	Carmi	28	52 50	16 50	47	140 00	71 00	128	146 00	65 50	178	96 50	65 50	35	67 00	20 50
Whiteside	Sterling	72	248 00	66 50	77			286	161 50	116 00	519	344 75	237 13	202	111 50	93 25
Whiteside	Morrison	72	69 75	48 50	111	116 00	87 00	389	127 75	101 00	381	184 50	159 25	138	58 00	48 00
Whiteside	Albany	1	19 00	1 00	16	2 00	2 00	40	52 00	18 00	31	61 50	35 50	55	50 50	28 50
Will	Joliet	37	56 00	6 23	46	135 00	20 55	121	177 00	32 07	150	208 00	32 70	47	90 00	15 88
Williamson	Marion	8	9 00	8 00	10	82 75	62 00	52	53 00	48 00	37	14 50	14 50			
Winnebago	Rockford	115	87 00	52 00	4	20 00	8 00	177	188 00	147 00	98	309 00	287 10	78	140 00	110 00
Woodford	El Paso	54	63 00	20 50	108	15 00		198	103 75	63 25	235	111 75	61 00	49	80 75	53 50
State Fair	Springfield	352	817 00	447 00	487	180 00	160 00	580	726 00	611 00	505	1,374 00	1,022 00	168	91 00	91 00
Fat St'k Show	Chicago	39	90 00	60 00												
Totals		4,495	$6,868 25	$3,368 58	4,823	$7,846 25	$3,553 08	13,602	$10,016 60	$6,469 39	21,216	$11,435 30	$8,204 20	3,761	$4,122 95	$2,507 76

Exhibit Illinois Agricultural Fairs, 1880.—Continued.

Counties.	Location of Fair.	Textile Fabrics.			Natural History.			Military Prize Drill.			Education.			Speed Ring.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Adams	Camp Point	740	$276 75	$220 00										30	$380 00	$325 00
Alexander																
Bond																
Boone	Belvidere	145	109 00	32 40										5	580 00	204 00
Brown	Mt. Sterling	200	185 00	148 50										50	595 00	490 00
Bureau	Princeton	294	204 25	148 50							82	$76 00	$75 00	23	685 00	480 00
Calhoun																
Carroll	Mt. Carroll	206	97 25	33 75											480 00	480 00
Cass	Virginia	126	100 50	59 60		$19 50								13	595 00	322 00
Champaign	Champaign	97	57 00	45 00	10	22 00	$7 00				18	28 00	18 00	27	455 00	365 00
Christian																
Clark	Marshall								$100 00					14	285 00	285 00
Clay																
Clinton																
Coles	Charleston	190	115 00	93 00										18	325 00	285 00
Cook																
Crawford	Robinson	188	105 00	105 00										10	435 00	435 00
Cumberland	Prairie City	64	79 00	49 50										28	475 00	375 00
DeKalb	Sandwich	140	71 75	48 25										24	289 00	206 33
DeKalb	Sycamore	194	132 00	43 00												
DeWitt	Clinton	202	96 00	78 00										12	337 00	156 00
Douglas	Tuscola	25	39 00	9 75							1	6 00	1 65	18	245 00	216 75
DuPage	Wheaton	119	96 00	59 00										8	135 00	122 00
Edgar	Paris	583	268 00	243 00										6	175 00	175 00
Edwards	Albion	84	115 50	65 00										11	215 00	215 00
Effingham	Effingham	191	250 00	160 00	32	75 00	21 00							41	550 00	360 00
Fayette	Vandalia	143	74 50	68 50	110	26 00	24 00							15	105 00	55 00
Ford	Paxton	191	95 00		5	13 00								24	670 00	124 00
Franklin	Benton	90	18 50	18 50												
Fulton	Canton	278	244 00	146 00										22	830 00	320 00
Fulton	Avon	421	174 00	140 00							36	25 00	14 00	22	700 00	700 00
Gallatin	Shawneet'wn	42	75 00	64 00	1	3 00	1 00							44	1,229 00	1,220 00
Greene	Carrollton	536	273 00	239 50										47	382 00	332 00
Grundy																
Hamilton	McLeansboro	98	94 00	41 50										52	740 00	550 00

Hancock														14	679 00	155 00
Hardin	Elizabethto'n	34	31 45	22 50		5 00								25	481 00	426 00
Henderson	Bigsville	175	49 75	55 25											1,780 00	1,780 00
Henry	Cambridge	355	156 50	214 50										16	330 00	330 00
Iroquois	Onarga	79	72 00	33 50										87	950 00	475 00
Iroquois	Watseka	27	50 00	17 00										12	214 00	39 50
Jackson	Murphysboro	41	74 60	8 60										28	435 00	364 00
Jasper	Newton	106	83 00	43 50										50	875 00	850 00
Jefferson	Mt. Vernon	148	96 75	67 50										42	1,350 00	1,100 00
Jersey	Jerseyville	417	127 00	122 00										8		40 00
JoDaviess	Galena	130	137 00	87 75										10	510 00	215 00
JoDaviess	Warren	117	76 50	61 50												
Johnson														34	825 00	800 00
Kane	Elgin	51	52 00	18 50										15	400 00	305 00
Kankakee	Kankakee	119	105 00	72 00										10	110 00	85 00
Kendall	Bristol	113	63 50			37 50						125		20	420 00	260 00
Knox	Knoxville	170	290 00	105 00	10									70	175 00	175 00
Lake	Libertyville	156	98 25	45 94										20	1,000 00	878 00
Lake	Waukegan	404	204 75	154 50	7	28 00	$8 00							29	750 00	409 00
LaSalle	Ottawa	178	191 00	64 00												
Lawrence																
Lee														26	595 00	595 00
Livingston	Fairbury	218	108 95	92 25	15	35 00	35 00							41	2,005 00	1,775 50
Logan	Lincoln	631	207 75	100 48										20	200 00	200 00
Logan	Atlanta	154	73 75	46 75	3	5 00	3 50							25	1,225 00	715 00
Macon	Decatur	94	59 00	37 00				5	200 00	200 00						
Macoupin	Carlinville	115	221 00	138 00	3	22 00	18 00							30	560 00	494 00
Madison																
Marion																
Marshall														15	385 00	345 00
Mason	Havana	115	60 00	49 00										30	530 00	326 00
Massac	Metropolis	88	82 00	51 00										52	2,700 00	2,050 00
McDonough	Macomb	164	125 00	87 00										14	550 00	315 00
McHenry	Woodstock	122	185 00	21 87										20	190 00	133 00
McHenry	Marengo	120	70 25	36 00										15	450 00	350 00
McLean	Bloomington	136	64 00	47 00										9	1,000 00	249 25
Menard	Petersburg	40	100 00	10 50										17	305 00	305 00
Mercer	Aledo	386	146 00	120 00												
Monroe																
Montgomery														22	740 00	740 00
Morgan	Jacksonville	461	274 75	230 50	16	90 00	45 00							17	210 00	168 00
Moultrie	Sullivan	79	55 00	36 80										47	1,105 00	727 50
Ogle	Oregon	81	76 25	30 00	5	21 00	10 00	1	50 00	50 00	2	$21 00	$4 00	32	548 50	548 50
Ogle	Rochelle															
Peoria														41	725 00	650 00
Perry	Pinckneyville	63	51 25	34 25										55	875 00	860 00
Piatt	Monticello	59	63 50	43 50	5	10 00	4 00				16	62 00	50 00	65	590 00	590 00
Pike	Pittsfield	518	305 00	292 00										15	110 00	60 00
Pope	Golconda	114	75 75	80 25												
Pulaski																
Putnam																
Randolph	Sparta	185	106 50	110 25												

Exhibit Illinois Agricultural Fairs, 1880.—Continued.

Counties.	Location of Fair.	Textile Fabrics.			Natural History.			Military Prize Drill.			Education.			Speed Ring.		
		Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid
Randolph	Chester	151	$137 50	$130 50										39	$1,200 00	$920 00
Richland	Olney	240	152 00	121 00										48	1,400 00	953 00
Rock Island		40	18 00	10 00										20	130 00	100 00
Rock Island																
Saline																
Sangamon																
Schuyler	Rushville	379	199 50	156 50										30	435 00	293 00
Scott																
Shelby	Shelbyville	130	48 00	40 00										27	415 00	375 00
Stark	Toulon	596	185 50	170 00							179			12	190 00	190 00
St. Clair	Belleville	133	142 00	106 00	23						15			55	653 00	603 00
Stephenson																
Tazewell	Delavan	473	136 50	99 25	13	$5 25	$4 50							35	350 00	335 00
Union	Jonesboro	253	189 20	106 26												
Vermilion	Catlin	92	93 00	79 00										34	795 00	782 00
Vermilion	Danville	42	76 00	51 00										15	1,050 00	650 00
Vermilion	Hoopeston	308	124 00	115 00										30	580 00	450 00
Wabash																
Warren																
Washington																
Wayne	Fairfield	86	55 00	48 25										21	297 00	212 00
White	Carmi	184	169 00	136 50				1	$150 00	$100 00				73	1,510 00	1,480 00
Whiteside	Sterling	250	138 50	90 63	35	45 00	32 00							52	536 00	232 00
Whiteside	Morrison	316	85 00	72 25	23	41 00	29 00				20	$15 00	$15 00	20	260 00	205 00
Whiteside	Albany													9	151 00	56 00
Will	Joliet	121	156 00	29 95										10	875 00	114 88
Williamson	Marion	209	85 50	78 50										19	218 00	206 00
Winnebago	Rockford	276	205 00	179 50	18	47 00	35 00					66 00	66 00	13	730 00	343 00
Woodford	El Paso	290	101 00	83 50	10	35 00	24 00							17	440 00	440 00
State Fair	Springfield	949	565 00	523 00	22	235 00	235 00				482	322 00	283 00	48	2,340 00	1,220 00
Total		17,868	$10,903 95	$7,673 78	366	$820 25	$536 00	8	$500 00	$350 00	976	$621 00	$526 65	2,239	$53,271 50	$40,841 71

Exhibit Illinois Agricultural Fairs, 1880—Continued.

Counties.	Location of Fair.	President.	Secretary.	Miscellaneous Exhibit.			Totals.		
				No. of entries.	Amount premiums offered.	Amount premiums paid.	No. of entries.	Amount premiums offered.	Amount premiums paid.
Adams	Camp Point	P. S. Judy	Richard Seaton				3,151	$2,964 00	$2,067 50
Alexander									
Bond									
Boone	Belvidere	Richard Barnes	A. E. Jenner	24			958	2,067 00	516 40
Brown	Mt. Sterling	W. H. Brackenridge	John J. McDonnold	37			1,357	2,389 50	1,805 00
Bureau	Princeton	Elijah Dee	C. P. Bascom	74		$18 50	1,374	3,265 25	2,366 50
Calhoun									
Carroll	Mt. Carroll	H. C. Blake	Don R. Frazer	11	$350 00	372 80	713	1,986 25	1,483 55
Cass	Virginia	T. J. Stribling	R. W. Rabourn				710	2,177 25	1,285 45
Champaign	Champaign	E. E. Chester	H. J. Dunlap	22	20 00	20 00	730	1,613 00	1,188 00
Christian									
Clark	Marshall	Wm. T. Martin	Harry W. Frost		40 00	40 00	352	1,232 00	729 00
Clay									
Clinton									
Coles	Charleston	S. D. Dole	R. S. Hodgen				1,152	2,284 00	1,745 00
Cook									
Crawford	Robinson	William Updike	L. V. Chaffee				705	1,707 00	1,449 00
Cumberland	Prairie City	William N. Berry	Geo. Bruster			62 00	308	1,318 00	1,019 25
DeKalb	Sandwich	F. Baldwin	J. M. Hummell	21	145 47	145 47	681	1,527 82	986 40
DeKalb	Sycamore	Hiram Holcomb	B. F. Wyman				514	1,206 00	578 00
DeWitt	Clinton	James A. Wilson	Lewis Campbell			33 25	964	1,375 00	822 75
Douglas	Tuscola	Coleman Bright	Chas. G. Eckhart	5	15 00	3 00	488	1,799 00	745 40
DuPage	Wheaton	Luther Bartlett	Thos. M. Hull				374	1,037 25	593 00
Edgar	Paris	W. O. Wilson	Walter Booth	31	33 00	32 00	2,521	2,675 50	2,450 50
Edwards	Albion	John Curtis	Morris Emmerson	16	20 00	20 00	648	1,732 25	1,238 25
Effingham	Effingham	E. H. Bishop	Geo. M. Lecrone				458	2,061 00	906 00
Fayette	Vandalia	John Thompson	D. M. Clark	65	26 00	29 00	1,078	1,011 00	777 50
Ford	Paxton	A. Croft	W. McTaggart	16			674	2,125 00	365 07
Franklin	Benton	William A. King	Chas. A. Akin				527	1,482 00	867 00
Fulton	Canton	Inman Blackaby	C. A. Emry	86	30 00	24 00	1,898	3,703 50	1,743 50
Fulton	Avon	D. H. Gorham	A. B. Thompkins	363		26 00	2,864	2,655 00	2,115 00
Gallatin	Shawneetown	M. M. Pool	John L. Robinson				492	2,864 00	2,126 05
Greene	Carrollton	Geo. W. Davis	N. J. Andrews	7	27 00	27 00	1,965	2,476 50	1,889 50
Grundy									
Hamilton	McLeansboro	V. S. Benson	G. B. Wheeler				577	2,328 75	1,200 75
Hancock									
Hardin	Elizabethtown	J. B. Miller	James A. Loury				271	1,255 65	514 40
Henderson	Biggsville	H. M. Whiteman	R. A. McKinley	25		6 00	1,256	1,800 75	1,421 75

Exhibit Illinois Agricultural Fairs, 1880—Continued.

Counties.	Location of Fair.	President.	Secretary.	Miscellaneous Exhibit.			Totals.		
				No. of entries.	Amount premiums offered.	Amount premiums paid.	No. of entries.	Amount premiums offered.	Amount premiums paid.
Henry	Cambridge	N. E. Gilbert	R. H. Hinman				1,339	$3,613 50	$3,145 50
Iroquois	Onarga	D. C. Brown	E. C. Hall				507	1,628 75	987 50
Iroquois	Watseka	J. H. Jones	Robert Hayes				582	2,188 00	1,325 00
Jackson	Murphysboro	Philip Kimmel, Sr.	John W. Grear	13	$49 50		297	1,249 20	263 75
Jasper	Newton	John Mason	W. E. Barrett	71	38 00	$29 50	760	2,000 00	1,189 20
Jefferson	Mt. Vernon	Jesse A. Dees	John S. Bogan	11		44 00	885	2,856 00	2,033 50
Jersey	Jerseyville	Joseph M. Conklin	Morris R. Locke				2,119	4,829 00	4,036 00
JoDaviess	Galena	S. S. Brown	Frank Bostwick	38	135 00	115 65	608	1,224 00	796 85
JoDaviess	Warren	Robert Hawley	Joseph Hicks				412	1,132 50	596 00
Johnson									
Kane	Elgin	H. Lee Borden	H. P. McGlincy				608	2,644 50	1,547 50
Kankakee	Kankakee	H. D. Worcester	Henry C. Bloom	6	135 00	152 00	696	2,002 75	1,400 50
Kendall	Bristoe	J. S. Seely	A. N. Beebe				623	1,318 00	85 00
Knox	Knoxville	J. V. N. Standish	J. L. Rynearson	70		87 00	1,933	2,864 00	1,977 00
Lake	Libertyville	W. H. Appley	J. A. Avery	21	25 00	15 00	494	1,151 25	472 19
Lake	Waukegan	John F. Powell	Chas. A. Partridge	11	18 00	4 50	1,674	3,599 95	2,103 20
LaSalle	Ottawa	James H. Pickens	A. M. Hoffman	135		55 00	1,430	3,301 00	1,371 00
Lawrence									
Lee									
Livingston	Fairbury	R. C. Straight	H. L. Bruce	51			1,634	3,444 20	2,448 25
Logan	Lincoln	Joseph Ream	A. B. Nicholson	21	28 00	28 00	3,163	4,7 3 00	3,052 40
Logan	Atlanta	Frank Hoblit	J. P. Hieronymus	41	59 00	41 75	1,371	1,810 75	1,347 00
Macon	Decatur	John R. Miller	M. B. Thomas	75			643	3,370 50	2,062 50
Macoupin	Carlinville	Joseph Bird	F. W. Crouch	12	66 00	68 50	739	2,499 25	2,032 50
Madison									
Marion									
Marshall									
Mason	Havana	J. F. Kelsey	S. F. Kyle	12			700	1,766 00	941 00
Massac	Metropolis	J. C. Willis	J. M. Stone	44		14 85	345	1,133 50	686 35
McDonough	Macomb	W. O. Blaisdell	W. H. Hainline	43	100 00	85 00	1,210	4,312 75	3,241 25
McHenry	Woodstock	Thomas McD. Richards	Wm. H. Stewart				697	2,039 50	712 87
McHenry	Marengo	L. W. Sheldon	J. S. Rogers	22	30 00	30 00	949	1,291 25	750 00
McLean	Bloomington	D. M. Funk	J. T. Didlake				653	2,118 00	1,424 00
Menard	Petersburg	David Grant	Robert S. Carter	1	100 00	100 00	530	2,588 00	583 08
Mercer	Aledo	James Feather	C. F. Durston				3,180	2,609 00	2,292 35
Monroe									
Montgomery									
Morgan	Jacksonville	F. M. Morton	J. M. Dunlap	2	210 00	135 00	2,295	4,116 25	3,403 97

Moultrie	Sullivan	O. A. Sargent	G. W. Vaughan				548	1,458 00	912 80
Ogle	Oregon	James H. Cartwright	Henry P. Lason		225 00	160 50	453	2,714 50	1,474 00
Ogle	Rochelle	William Stocking	Geo. W. Clark				754	2,001 00	1,588 85
Peoria									
Perry	Pinckneyville	W. K. Murphy	L. M. Kane				388	1,643 75	1,113 75
Platt	Monticello	J. W. Warner	H. D. Peters				542	2,059 75	1,662 50
Pike	Pittsfield	A. C. Rush	James H. Crane	15	50 00	50 00	1,039	2,189 00	2,018 00
Pope	Golconda	John Allen	J. E. Y. Hanna	47		12 55	622	783 75	639 90
Pulaski									
Putnam									
Randolph	Sparta	John Anderson	Milton E. Foster	7	50 00	44 10	1,634	2,450 25	1,679 60
Randolph	Chester	Wm. A. Gordon	Wm. Schuchert	64	20 00	7 50	1,027	2,804 75	1,885 00
Richland	Olney	Isaac Welty	W. F. Beck	1	8 00	5 00	906	3,559 00	2,249 50
Rock Island		A. F. Hollister	Luther S. Pearsall	40	20 00	16 00	445	659 00	396 10
Rock Island									
Saline									
Sangamon	Springfield	George Pickrell	Phil. M. Springer						
Schuyler	Rushville	Edwin M. Anderson	S. B. Montgomery			104 50	1,366	2,089 50	1,632 50
Scott									
Shelby	Shelbyville	John A. Tackett	Geo. A. Roberts	12	12 00	12 00	704	1,707 00	1,475 50
Stark	Toulon	Andrew Oliver	Chas. Myers				2,675	2,691 50	1,810 75
St. Clair	Belleville	Jos. Reichert	G. F. Hilgard	61	15 00	15 00	1,521	2,034 00	1,539 00
Stephenson									
Tazewell	Delavan	Ira B. Hall	G. W. Patten		70 00	70 00	1,993	2,685 75	2,055 00
Union	Jonesboro	Josiah Bean	Joseph H. Sampson	263		139 95	1,419	1,953 60	1,698 36
Vermilion	Catlin	J. H. Oakwood	W. S. McClenathan	21			838	2,643 00	2,348 00
Vermilion	Danville	L. T. Dickason	W. M. Bandy	56			770	2,832 00	1,815 45
Vermilion	Hoopeston	J. A. Cunningham	Wm. Glaze	18	30 00	20 00	1,440	2,481 00	1,909 00
Wabash									
Warren									
Washington									
Wayne	Fairfield						464	1,310 75	884 50
White	Carmi	J. R. Williams	R. L. Organ	34			1,037	4,387 00	2,959 50
Whiteside	Sterling	A. A. Terrell	W. F. Eastman	285	476 25	54 60	2,040	2,866 50	1,456 11
Whiteside	Morrison	R. E. Logan	Ed. J. Congar	341	98 50	69 00	2,216	1,893 50	1,468 00
Whiteside	Albany	E. H. Nevitt	J. F. Happer				219	646 00	248 00
Will	Joliet	A. Allen Francis	W. T. Nelson				807	3,138 00	470 00
Williamson	Marion	R. M. Hundley	L. A. Goddard	4			522	1,243 75	1,012 00
Winnebago	Rockford	S. P. Crawford	Henry P. Kimball	39		34 00	1,195	2,939 00	1,990 50
Woodford	El Paso	Edwin Hodgson	D. A. Espy	199	32 00	28 00	1,508	2,286 25	1,486 75
State Fair	Springfield	James R. Scott	S. D. Fisher			639 70	5,332	16,986 00	15,432 76
Fat St'k Show	Chicago	" "	" "				551	3,445 00	2,450 76
Total				3,008	$2,806 72	$3,302 38	97,893	$217,645 42	$147,473 07

FINANCIAL EXHIBIT ILLINOIS AGRICULTURAL FAIRS, 1880.

Counties.	Location of Fair.	Amount in treasury last report.	Amount of deficit last report.	Amount received gate and entrance fees.	Amount received both rents and permits.	Amount received sale shares of stock.	Amount received State appropriation.	Amount received other sources.	Amount paid in premiums.	Amount paid real estate, buildings and improvements.	Amount paid current expenses not premiums.	Amount in treasury.	Amount deficit.
Adams	Camp Point	$193 56		$3,914 25	$435 84	$40 00	$100 00	$165 38	$2,467 50	$895 19	$878 26	$608 08	
Alexander													
Bond													
Boone	Belvidere	38 84		1,314 00	133 20		100 00	46 62	516 40	391 56	659 96	64 74	
Brown	Mt. Sterling		$1,876 90	2,431 66	291 50	1,569 55	100 00	80 00	1,805 00	1,684 35	892 67		$1,786 21
Bureau	Princeton	664 87	4,100 00	3,500 50	202 90		100 00	144 15	2,366 50	789 33	1,338 24		3,981 65
Calhoun													
Carroll	Mt. Carroll	41 48	1,467 50	1,722 30	502 98		100 00	131 00	1,483 55	573 56	429 45	11 20	1,467 50
Cass	Virginia	44 25	2,370 06	1,389 78	362 00		100 00	292 00	1,285 45		875 72	26 86	2,370 06
Champaign	Champaign	359 41		2,000 00	241 50		100 00		1,188 00		1,294 09	218 82	
Christian													
Clark	Marshal			847 91	77 50		100 00	130 50	729 00	148 74	277 60	57	
Clay													
Clinton													
Coles	Charleston	94 73	800 00	2,751 22	405 0		100 00	75 00	1,745 00	407 93	520 03		46 91
Cook													
Crawford	Robinson	17 70		1,495 20	403 00		100 00	77 35	1,449 00	264 30	173 92	236 03	
Cumberland	Prairie City		1,669 75	1,466 20	116 00		100 00		1,019 25		300 67	362 28	1,669 75
DeKalb	Sandwich			1,854 15	190 90			172 23	986 40	189 59	1,003 85	47 44	
DeKalb	Sycamore		320 50	1,108 25	224 50			90 00	578 00	140 00	465 49	18 76	100 00
DeKalb													
DeWitt	Clinton	17 11	1,250 00	1,496 60	711 20		100 00	45 00	822 75		1,461 10	86 06	1,250 00
Douglas	Tuscola	6 35		1,072 32	137 00		100 00	103 45	745 40		631 87	41 85	
DuPage	Wheaton		382 00	618 75	54 20		100 00	193 14	593 00		341 09		350 00
Edgar	Paris	1,896 18		3,500 68	286 00		100 00		2,450 50	675 00	638 82	2,018 54	
Edwards	Albion	890 71		1,773 10	300 00		100 00		1,238 25	360 46	451 28	1,013 82	
Effingham	Effingham			701 25	375 00	340 00		85 00	906 00	595 25			
Fayette	Vandalia	8 57		869 70	183 00		100 00	171 25	777 50	550 00	393 89		388 87
Ford	Paxton			1,000 00	105 00			21 50	365 07	360 00	251 43	150 00	
Franklin	Benton	98 26		1,419 18	94 50		100 00		867 00	548 07	318 89		22 02
Fulton	Canton			2,744 00	147 00		50 00	170 00	1,743 50	376 00	958 50	33 00	
Fulton	Avon	133 97		2,502 40	487 30		50 00	207 63	2,115 00	299 80	895 11	71 39	
Gallatin	Shawneetown	1,306 00		2,965 00	650 00		100 00		2,126 00	1,605 00	650 00	640 00	
Greene	Carrollton	1,354 46		3,409 30	444 75		100 00	550 00	1,889 50	500 00	3,276 38	192 63	
Grundy													
Hamilton	McLeansboro			2,186 25	368 50	2,500 00			1,200 75	5,800 00	316 92	177 08	2,440 00
Hancock													
Hardin	Elizabethtown		126 00	473 53	169 70		100 00	12 00	514 40	50 00	89 83		125 00
Henderson	Biggsville		377 74	1,328 87	185 55		100 00	118 00	1,421 75	100 00	308 67		377 74
Henry	Cambridge	548 65	1,503 00	3,451 81	775 40		100 00	111 97	3,145 50	817 00	1,009 41	6 03	1,354 00

Iroquois	Onarga		1,771 10	643 50	272 95		100 00	367 96	986 50		397 91		1,771 10
Iroquois	Watseka			1,825 00	400 00				1,325 00	675 00		225 00	
Jackson	Murphysboro	47 43	300 00	435 17	43 00		100 00		263 70		443 15	118 75	500 00
Jasper	Newton		1,212 27	1,685 10	243 00	1,500 00	100 00	15 50	1,189 25	559 00	361 82	221 26	
Jefferson	Mt. Vernon			2,395 64	569 50			44 00	2,033 50	525 00	447 68	2 96	
Jersey	Jerseyville	513 68		5,840 50	1,080 60		100 00	1,162 00	4,036 00	50 00	2,512 78	2,098 00	
JoDaviess	Galena		2,311 00	945 50	100 00		50 00	200 00	796 85	50 00	448 65		2,311 00
JoDaviess	Warren	96 98	829 17	864 30	293 45		‡100 00	36 85	596 00	84 92	355 34	26 15	500 00
Johnson													
Kane	Elgin	35 75		1,607 71	19 00		100 00	646 50	1,547 50		858 36	3 10	
Kankakee	Kankakee	11 39	1,329 10	1,618 30	196 75		100 00	235 05	1,400 50	65 66	695 33		1,329 10
Kendall	Bristol			637 33			100 00		85 00		650 25	2 08	
Knox	Knoxville	40 25		2,551 95	560 75		100 00	94 05	1,977 00	300 00	900 00	170 00	
Lake	Libertyville	47 54		545 80	64 00		50 00	41 25	472 19	33 50	187 96	54 94	
Lake	Waukegan	298 34	4,000 00	3,654 60	352 00		50 00	206 00	2,103 20		1,600 12	857 62	4,000 00
LaSalle	Ottawa	51 27		2,251 04			100 00		1,371 00		658 92	372 39	
*Lawrence	Lawrenceville		600 00				100 00			50 00	50 00		600 00
Lee													
Livingston	Fairbury	13 11	1,953 00	3,309 24	471 60		50 00	107 30	2,448 25		952 19	197 81	1,600 00
Logan	Lincoln		619 29	3,060 33	438 50	25 00	50 00	995 25	3,052 40	458 55	1,365 70		926 86
Logan	Atlanta	34 42	2,430 00	2,086 55	148 90		50 00	481 37	1,347 00	34 85	659 86	29 53	1,700 00
Macon	Decatur	4 17		2,497 18	481 30		100 00	22 00	2,062 50	254 00	788 15		
Macoupin	Carlinville			2,988 70	749 25	6,225 00		539 35	2,032 50	6,089 70	1,142 27	1,237 83	
Madison													
Marion													
Marshall													
Mason	Havana	69 66		1,203 00	304 00		100 00		941 00		702 84	32 82	
Massac	Metropolis	425 78		479 45	174 50		100 00	112 50	686 35	1,003 14	264 70		661 96
McDonough	Macomb		4,052 58	3,332 00	739 50	110 00	100 00	262 70	3,241 25	184 90	1,118 05		4,052 58
McHenry	Woodstock	18 06	2,000 00	1,064 57	272 43			544 94	712 87	1,000 00	687 13		2,500 00
McHenry	Marengo			940 67	211 23			202 05	750 00	120 00	483 95		
McLean	Bloomington	271 15	8,300 00	1,417 20	351 00		100 00	920 70	1,424 00	510 40	1,125 65		8,300 00
Menard	Petersburg		864 00	1,004 95	510 45		100 00	114 86	583 08		656 01		372 83
Mercer	Aledo	21 16	642 10	3,160 00	535 50		100 00	141 50	2,292 35	571 28	830 08	42 35	420 00
Monroe													
Montgomery													
Morgan	Jacksonville	185 10		3,607 75	244 00		100 00	609 00	3,403 97	3,573 36	1,166 69		3,398 17
Moultrie	Sullivan	4 00		1,148 34	100 00		100 00		912 80		430 20	9 34	
Ogle	Oregon	107 00	900 00	1,416 53	544 20	30 00	50 00	347 00	1,474 00	761 17	473 24		1,113 68
Ogle	Rochelle	75 00		1,900 00	531 84		50 00	219 40	1,588 85	796 79	390 60		
Peoria													
Perry	Pinckneyville	529 51		1,951 95	645 80		100 00	379 35	1,113 75	1,405 14	277 75	809 97	
Piatt	Monticello		21 00	2,946 30	729 50		100 00	178 25	1,662 50	300 11	773 02	1,197 42	
Pike	Pittsfield	152 00		2,341 65	770 65		100 00		2,018 00		1,270 54	75 76	
Pope	Golconda	26 68		1,110 00	90 00		100 00		639 90	1,148 47	201 26		662 95
Pulaski													
Putnam													
Randolph			874 03	1,632 55	388 25			1,492 96	1,679 60	365 89	1,834 16		1,239 92
Randolph	Chester	271 60		2,697 90	788 30			56 00	1,885 00	67 00	1,038 00	823 80	
Richland	Olney	902 26		1,620 70	790 50		100 00	703 00	2,249 50	902 26	444 41	520 19	
Rock Island	Port Byron		32 35	462 95	194 50			216 70	396 10	80 00	365 70		
Saline													

Financial Exhibit Illinois Agricultural Fairs, 1880—Continued.

Counties.	Location of Fair.	Amount in treasury last report.	Amount of deficit last report.	Amount received gate and entrance fees.	Amount received booth rents and permits.	Amount received sale shares of stock.	Amount received State appropriation.	Amount received other sources.	Amount paid in premiums.	Amount paid improvements and buildings.	Amount paid real estate, buildings and current expense not premiums.	Amount in treasury.	Amount deficit.
†Sangamon	Springfield							$795 00		$635 00	$110 00	$50 00	
Schuyler	Rushville		$756 00	$1,938 40	$426 10		$100 00	306 30	$1,632 50	142 40	828 09		$588 19
Scott													
Shelby	Shelbyville	$50 77		1,913 40	327 00	$3,195 00	100 00	147 85	1,475 50	3,256 02	709 33	293 17	
Stark	Toulon	780 78		3,146 63	484 90		100 00	6 00	1,810 75	450 00	1,676 08	581 48	
St. Clair	Belleville	1,135 25	13,000 00	2,115 65	1,025 20			492 55	1,539 00	300 00	550 00		10,620 35
Stephenson													
Tazewell	Delavan		2,064 16	3,428 10	547 50	1,044 00	100 00		2,055 00	478 73	1,149 82		628 11
Union	Jonesboro	23 91		1,700 00	575 00		100 00	235 30	1,698 36	200 0	760 91		25 06
Vermilion	Catlin		470 00	2,521 10	465 50				2,348 00	224 09	495 43		550 92
Vermilion	Danville		346 43	2,121 00	879 07				1,815 45		833 38	4 81	
Vermilion	Hoopeston		230 17	2,910 66	956 00			97 40	1,909 00	1,925 43	849 46		950 00
Wabash													
Warren													
Washington													
Wayne	Fairfield		1,216 00	851 48	153 35		100 00		884 50		232 40		1,228 07
White	Carmi	309 98	1,690 02	4,500 25	1,041 03	426 00	100 00	707 00	2,959 50	3,040 27	1,054 32		1,659 85
Whiteside	Sterling		1,780 00	7,958 34	601 31		50 00	260 00	1,456 11	569 77	5,649 17		585 40
Whiteside	Morrison	743 33		2,134 50	329 95		50 00	176 75	1,468 00	990 02	1,554 54		578 03
Whiteside	Albany	12 12	25 00	432 25	160 80			163 60	248 00	334 76	505 87	10 34	355 20
Will	Joliet		13,200 00	1,944 11	224 20	891 36	100 00	1,139 00	470 00	300 00	3,135 67		12,807 00
Williamson	Marion	288 56		1,285 85	370 00		100 00		1,012 00	618 24	380 00	34 17	
Winnebago	Rockford	17 66	8,223 75	4,863 40	496 10		100 00	227 62	1,999 50		2,136 99	1,568 29	8,223 75
Woodford	El Paso			2,323 25	261 90	2,179 00		297 00	1,486 75	4,600 00	700 00	127 40	1,853 00
State Fair	Springfield	2,974 39		15,674 00	3,379 37		3,000 00	210 00	15,432 76		10,071 82		266 82
Fat Stock Show	Chicago			2,598 39				3,320 00	2,450 76		4,045 81		578 18
Total		$18,305 14	$94,445 97	$200,550 82	$37,164 00	$20,074 91	$9,400 00	$23,409 88	$147,473 07	$58,205 95	$88,442 65	$17,784 90	$97,387 79

†State Fair held on Society's grounds. *No Fair held in 1880. ‡For 1879 and 1880.

FAIR ASSOCIATIONS, CAPITAL STOCK, REAL ESTATE, VALUE OF IMPROVEMENTS, ETC.

Counties.	Location of Fair.	Amount authorized capital stock	Numb'r of shar's of stock issued	Amount of stock issued	Par value of a share of stock	Numb'r of sharehold's or members	Cash value of real estate and improvements thereon	Number of volum's in Libra'y	Date of incorporation or organization.	Time of holding Fair in 1880.
Adams	Camp Point		487	$4,870 00	$10 00	339	$5,000 00		——, 1876	August 30, 31, September 1, 2, 3
Alexander										
Bond										
Boone	Belvidere	$6,070 00	607	6,070 00	10 00	223	10,000 00		March 16, 1872	September 7, 8, 9, 10
Brown	Mt. Sterling	5,000 00	500	5,000 00	10 00	166	3,000 00		January 5, 1878	August 24, 25, 26, 27
Bureau	Princeton								July 7, 1855	September 14, 15, 16, 17
Calhoun										
Carroll	Mt. Carroll						3,000 00		——, 1856	September 28, 29, 30, October 1
Cass	Virginia	3,200 00	160	3,200 00	20 00	85	3,500 00		——, 1856	August 17, 18, 19, 20
Champaign	Champaign	15,000 00	388	19,400 00	50 00	270	15,000 00		October 8, 1870	September 21, 22, 23, 24
Christian										
Clark	Marshall									September 22, 23, 24
Clay										
Clinton										
Coles	Charleston		99			86	6,000 00		——, 1841	September 8, 9, 10, 11
Cook										
Crawford										
Cumberland	Prairie City						5,000 00		——, 1874	September 29, 30, October 1, 2
DeKalb	Sandwich		37	4,700 00		9	6,000 00		——, 1860	September 14, 15, 16, 17
DeKalb	Sycamore	2,650 00	530	2,650 00	5 00	110	3,000 00		March 12, 1870	September 14, 15, 16, 17
DeWitt	Clinton		403	4,030 00	10 00	190	3,500 00		October 4, 1870	August 30, 31, September 1, 2, 3
Douglas	Tuscola	6,000 00	188	2,350 00	12 50	45	3,000 00		August 26, 1872	September 14, 15, 16, 17
DuPage	Wheaton					121	2,000 00		October, 1853	September 8, 9, 10
Edgar	Paris		288	7,200 00	25 00		8,000 00		September, 1854	August 31, September 1, 2, 3
Edwards	Albion						3,000 00		——, 1856	September 28, 29, 30, October 1
Effingham	Effingham	1,000 00	68	340 00	5 00	56	500 00		May 13, 1880	August 17, 18, 19, 20
Fayette	Vandalia		503	2,515 00	5 00	153	1,700 00		November 5, 1857	September 29, 30, October 1
Ford	Paxton						1,000 00		April 9, 1864	August 31, September 1, 2, 3
Franklin	Benton									September 21, 22, 23, 24
Fulton	Canton									October 4, 5, 6, 7, 8
Fulton	Avon	10,000 00	254	6,350 00	25 00	156	8,300 00		——, 1872	September 28, 29, 30, October 1
Gallatin	Shawneetown	4,000 00	400	4,000 00	10 00	49	7,000 00		August 31, 1872	October 4, 5, 6, 7, 8
Greene	Carrollton	8,000 00	121	6,050 00	50 00	89	8,500 00		March 20, 1875	October 19, 20, 21, 22
Grundy										
Hamilton	McLeansboro	2,500 00	25	2,500 00	100 00	15	6,500 00		July 29, 1880	October 19, 20, 21, 22, 23
Hancock										
Hardin	Elizabethtown	880 00	176	880 00	5 00	76	2,500 00	100	September 2, 1870	September 22, 23, 24, 25
Henderson	Biggsville					350	3,500 00		——, 1855	September 14, 15, 16, 17

Fair Associations. Capital Stock, Real Estate, Value of Improvements, Etc., 1880—Continued.

Counties.	Location of Fair.	Amount authorized capital stock	Numb'r of shar's of stock issued	Amount of stock issued	Par value of a share of stock	Numb'r of shareho'd'r or members	Cash value of real estate and improvements thereon	Number of volum's in Libra'y	Date of incorporation or organization.	Time of holding Fair in 1880.
Henry	Cambridge	$10,000 00	396	$1,980 00	$5 00	65	$10,000 00		September 12, 1872	August 30, 31, September 1, 2, 3
Iroquois	Onarga	10,000 00	352	3,520 00	10 00	130	2,500 00		November 13, 1869	September 6, 7, 8, 9, 10
Iroquois	Watseka					5	5,000 00			September 13, 14, 15, 16, 17, 18
Jackson	Murphysboro	5,000 00	200	5,000 00	20 00	60	5,000 00		August 4, 1869	September 21, 22, 23, 24
Japser	Newton	3,000 00	300	3,000 00	10 00	100	2,000 00		March 20, 1880	September 21, 22, 23, 24
Jefferson	Mt. Vernon	6,000 00	60	6,000 00	100 00	15	6,000 00		July 23, 1880	October 13, 14, 15, 16, 17
Jersey	Jerseyville	20,000 00	513	12,855 00	25 00	418	20,345 00		April 13, 1868	October 12, 13, 14, 15
Jo Daviess	Galena	25,000 00	2,200	11,000 00	5 00	200	10,000 00		——— 1856	September 28, 29, 30, October 1
Jo Daviess	Warren	10,000 00	500	10,000 00	20 00	44	4,000 00	30	——— 1869	September 14, 15, 16, 17
Johnson										
Kane	Elgin									September 14, 15, 16, 17
Kankakee	Kankakee					287	3,000 00		——— 1855	September 21, 22, 23, 24
Kendall	Bristol						3,000 00		——— 1853	September 7, 8, 9
Knox	Knoxville					243	5,000 00	65	June 4, 1853	September 13, 14, 15, 16, 17
Lake	Libertyville						1,000 00		——— 1852	September 22, 23, 24
Lake	Waukegan	12,000 00	320	8,000 00	25 00		18,000 00		June 5, 1871	September 27, 28, 29, 30, Oct. 1, 2
LaSalle	Ottawa									September 6, 7, 8, 9, 10, 11
Lawrence	Lawrenceville					75	800 00			
Lee										
Livingston	Fairbury	6,000 00	216	5,233 55	25 00	202			March 25, 1876	September 6, 7, 8, 9, 10
Logan	Lincoln	12,106 00	485	9,625 00	20 00	145	12,500 00		July 2, 1872	August 23, 24, 25, 26, 27, 28
Logan	Atlanta	20 000 00	293	5,860 00	20 00	184	7,000 00	52	April 20, 1860	September 7, 8, 9, 10
Macon	Decatur						5,000 00	100	——— 1857	September 21, 22, 23, 24
Macoupin	Carlinville	6,500 00	260	6,500 00	25 00	246	6,000 00	19	April 29, 1880	September 7, 8, 9, 10
Madison										
Marion										
Marshall										
Mason	Havana	5,000 00							March 30, 1872	September 7, 8, 9, 10
Massac	Metropolis	2,500 00	25	2,500 00	100 00	21	3,000 00		August, 1876	October 13, 14, 15, 16
McDonough	Macomb		684	3,420 00	5 00	102	10,000 00		——— 1854	August 24, 25, 26, 27, 28
McHenry	Woodstock					570	7,500 00		——— 1852	September 7, 8, 9, 10
McHenry	Marengo								January, 1876	September 14, 15, 16, 17
McLean	Bloomington		200	2,500 00	12 50	195	25,000 00		——— 1852	August 31, September 1, 2, 3
Menard	Petersburg									August 31, September 1, 2, 3
Mercer	Aledo						4,000 00		March, 1854	September 20, 21, 22, 23
Monroe										
Montgomery										
Morgan	Jacksonville	10,000 00	378		15 00		18,000 00		August 31, 1851	August 23, 24, 25, 26, 27

Moultrie	Sullivan									September 14, 15, 16, 17
Ogle	Oregon	10,000 00	676	3,380 00	5 00	70	3,500 00			September 21, 22, 23, 24
Ogle	Rochelle	10,000 00	600	6,000 00	10 00		6,000 00		September 23, 1873	September 6, 7, 8, 9
Peoria										
Perry	Pinckneyville						5,000 00		October 12, 1872	October 5, 6, 7, 8
Piatt	Monticello		710	3,550 00	5 00	414	4,500 00		——— 1856	August 16, 17, 18, 19, 20
Pike	Pittsfield								May 24, 1873	September 21, 22, 23, 24
Pope	Golconda					275	2,000 00		May 19, 1857	October 7, 8, 9
Pulaski										
Putnam										
Randolph	Sparta					243	5,000 00		September, 1851	September 29, 30—October 1
Randolph	Chester	5,000 00	500	5,000 00	10 00	76	9,300 00		August 12, 1874	October 19, 20, 21, 22
Richland	Olney								June 7, 1856	September 14, 15, 16, 17, 18
Rock Island					25 00	28	700 00		January, 1877	September 9, 10, 11
Rock Island										
Saline										
Sangamon										
Schuyler	Rushville					600	2,500 00		——— 1856	September 21, 22, 23, 24
Scott										
Shelby	Shelbyville	5,000 00	348	3,480 00	10 00	100	3,300 00		June 6, 1857	September 21, 22, 23, 24, 25
Stark	Toulon					1,200	15,000 00		——— 1853	September 21, 22, 23, 24
St. Clair	Belleville	7,500 00	750	7,500 00	10 00	250	22,000 00		August 15, 1872	October 12, 13, 14, 15
Stephenson										
Tazewell	Delavan	6,000 00	466	4,660 00	10 00	276	7,000 00		July 5, 1879	September 13, 14, 15, 16, 17, 18
Union	Jonesboro						5,000 00		——— 1855	September 14, 15, 16, 17, 18
Vermilion	Catlin					31	1,000 00		——— 1851	September 7, 8, 9, 10
Vermilion	Danville						10,000 00			August 31—September 1, 2, 3, 4
Vermilion	Hoopeston	5,000 00	335	3,350 00	10 00	150	4,500 00		July 14, 1873	August 23, 24, 25, 26, 27
Wabash										
Warren										
Washington										
Wayne	Fairfield		560	2,800 00	5 00	30	4,000 00		——— 1854	September 21, 22, 23, 24
White	Carmi	4,000 00	400	4,000 00	10 00	201	11,000 00		May 23, 1879	September 7, 8, 9, 10, 11
Whiteside	Morrison					950	3,790 02		——— 1872	September 7, 8, 9, 10
Whiteside	Albany					180	500 00		September 8, 1875	September 1, 2, 3
Will	Joliet	30,000 00	3,446	17,230 00	5 00	206	30,000 00		——— 1869	September 7, 8, 9, 10
Williamson	Marion					800	3,800 00		——— 1857	September 28, 29, 30—October 1
Winnebago	Rockford	8,000 00	1,600	8,000 00	5 00	250	30,000 00		February 15, 1855	September 13, 14, 15, 16, 17
Woodford	El Paso	5,000 00	500	5,000 00	10 00	299	6,000 00		January 28, 1880	September 14, 15, 16, 17
Total		$99,290 00	23,507	$253,018 55		12,524	$507,535 02			

REPORT OF PURE-BRED STOCK EXHIBITED AT ILLINOIS AGRICULTURAL FAIRS—1880.

Counties.	Shorthorn Cattle.					Hereford.					Devon.				
	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid
Adams	48	$350	$294	48	$294										
Alexander															
Bond															
Boone	21	57	49	13	38		$57				1	$50		1	
Brown															
Bureau	75	444	385	75	385										
Calhoun															
Carroll	38	101	97	38	97										
Cass	27	294	160	27	160										
Champaign	13	56	39	13	39										
Christian															
Clark	8	147	62	8	62										
Clay															
Clinton															
Coles	37		236	23											
Cook															
Crawford															
Cumberland	18	144	108												
DeKalb, Sycamore	38	144	132	7	23										
DeWitt															
Douglas	6	203	21	6	21										
DuPage	11	55	32	11	32										
Edgar	59	410	403	38	264										
Edwards	23	64	54	19	37						9	64	37	9	37
Effingham															
Fayette	27	58	43	10	18										
Ford, Paxton	40	116	34			9	58	31							
Franklin											12	59	34	3	7
Fulton, Canton	14	72	55	14	55						2	72	12	3	12
Fulton, Avon	52	316	252								3	66	9		
Gallatin	27	156	146	9	8										
Greene	15	100	60	15	60							20			
Grundy															
Hamilton	16	84	63	4	5										
Hancock															
Hardin		12													
Henderson	18	94	94	18	94										
Henry	44	201	194	22	91	8	60	41	8	41		60			
Iroquois, Onarga	27	218	138	27	138										
Iroquois, Watseka	38	118	118	38	118	6	118	41	6	41					
Jackson												39			
Jasper	25	164	133	15	50						1	66	6	1	6
Jefferson	38	149	134	15	50										
Jersey	20	240	170	2	10	20	240	205							
JoDaviess, Galena	32	117	101	32	101										
JoDaviess, Warren	21	77	77	11	40										
Johnson															
Kane	17	70	47												
Kankakee	24	116	113	24	113										
Kendall	51	56	51	51	51	4	56	9	4	9	1	56		1	
Knox															
Lake, Waukegan	23	73	57	23	57		73					73			
LaSalle	27	281	147	27	147										
Lawrence															
Lee															
Livingston, Fairbury	23	299	263	8	48	16	160	121			12	170	86	12	86

Report of Pure-Bred Stock—Continued.

nties.	Shorthorn Cattle.					Hereford.					Devon.				
	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid	Number of entries	Amount of premiums offered	Amount of premiums paid	Owned in county. Number of entries	Owned in county. Amount of premiums paid
...oin	23	334	314	18	82		69								
...ta	27	73	63												
...oin															
...n															
...l															
	10	84	41												
...ugh															
...y ...t'ck	12	72	41	12	41		72					72			
...r ...ro	34	43	41	32	36	2	43	9	2	9		43			
	16	247	156	16	156										
	10	200	10	3											
	22	118	118	22	118										
...ery															
	32	426	357	19	322										
	32	177	167	13	47										
...	8	60	29	8	29		60					54			
...	34	88	71	8	39	1	88	7							
	10	52	34	10	34										
	54	220	205	12	15										
	28	242	194	18	157										
	5		25	5	25										
	16	73	55	6	26										
	32	172	118	12	75						8	128	55	8	55
...d ...n ...d	28	45	18	28	18							25			
	25	96	91	18	62										
	47	241	241	17	57										
	28	122	114	20			122					122			
	26	246	150								1	90	6		
	34	198	194	8	68										
	54	324	262	17	177	10	159	104							
	11	65	48	1	5										
	34	152	152	12	38		152				9	152	97		
	30	89	74				51								
	8	45	29	8	29						1	25	4	1	4
	21	82	47	21	47						8	67	38	8	38
	45	55	42	23	29	10	55	38	10	38	2	55	6	2	6
	25	92	83	11	26	16	90	65			12	90	45		
	1,862	$10,189	$8,146	1,089	$4,464	102	$1,783	$671	30	198	82	$1,718	$435	48	251

Report of Pure-bred Stock—Continued.

Counties.	Holstein.					Ayrshire.					Jersey.				
	Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county		Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county		Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county	
				No. of entries.	Am't prem's paid				No. of entries.	Am't prem's paid				No. of entries.	Am't prem's paid
Adams	2	$40	$15		$15						2	$58	$10		$10
Alexander															
Bond															
Boone		49									6	49	21	6	21
Brown															
Bureau															
Calhoun											8	50	24	8	24
Carroll															
Cass															
Champaign											2	26	10	2	10
Christian															
Clark															
Clay															
Clinton															
Coles											7		31	7	31
Cook															
Crawford											4	50	50	4	50
Cumberland															
DeKalb															
DeWitt															
Douglas										14					
DuPage						3	54	14	3		12	55	33	12	33
Edgar											6	54	45	6	45
Edwards											4	48	11	4	11
Effingham											5	63	42	5	42
Fayette															
Ford. Paxton											1	58			
Franklin											4	24	14	4	14
Fulton—Canton		72									1	72	4	1	4
Fulton—Avon	1		5												
Gallatin											2	71	10	1	5
Greene											7	20	20		
Grundy															
Hamilton											16	84	61	8	24
Hancock															
Hardin															
Henderson										14					
Henry		60				4	60	14	4			60			
Iroquois															
Jackson												21			
Jasper											9	59	34	9	34
Jefferson											9	55	31	9	31
Jersey											5	40	35	1	
JoDaviess															
Johnson															
Kane	5	70	23	5	23	1	70	10			3	70	14	3	14
Kankakee															
Kendall	2	56		2							4	56		4	
Knox															
Lake—Waukegan	1	73	8			14	73	38	7	17	31	73	67	28	54
LaSalle															
Lawrence															
Lee															
Livingston—Fairbury											13	170	87	13	87
Logan—Lincoln											10	69	38	5	29
Logan—Atlanta											4	44	15		
Macon															
Macoupin															
Madison															
Marion															
Marshall															

Report of Pure-bred Stock—Continued.

ounties.	Holstein.					Ayrshire.					Jersey.				
	Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county		Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county		Number of entries.	Amount premiums offered	Amount premiums paid	Owned in county	
				No. of entries	Am't prem's paid				No. of entries	Am't prem's paid				No. of entries	Am't prem's paid
son											2	$73	$7	2	$7
ssac															
Donough															
Henry—															
oodstock	2	$72	$12	2	$12	3	$72	$15	3	$15	14	72	52	3	9
Henry—															
arengo	4	43	10	4	10	10	43	29	10	29	10	43	30	1	3
Lean											12	60	54	12	54
ard															
ver											5	17	17	5	17
aroe															
ntgomery															
rgan															
ultrie															
e—															
regon		54					54					54			
e—															
ochelle	11	88	38	11	38										
ria															
ry															
tt															
e															
pe															
aski															
tnam															
ndolph—															
hester											4	73	28	3	23
hland											18	154	84	19	94
ck Island—															
ort Byron							25				5	25	10	5	10
ine															
ngamon															
uyler											5	41	23	5	23
tt															
elby											6	71	48	6	48
ark							122				1	122	10	1	10
Clair															
phenson															
zewell											23	74	65	18	54
ion															
rmilion															
abash															
arren															
ashington															
ayne															
hite		152					152				5	152	37	4	32
hiteside—															
terling		51				13	51	45			16	51	34		
hiteside—															
lbany											2	25	9	2	9
ll											9	82	44	9	44
lliamson											4	67	15	4	15
nnebago	7	55	25	2	8						13	55	44	11	39
oodford											11	90	46		
Total	35	$935	$136	26	$106	48	$776	$165	27	$89	340	$2,900	$1,364	250	$1,055

Report of Pure-Bred Stock——Continued.

Counties.	Thoroughbred Horses.					Roadsters.					Norman and French Draft.					Clydesdale & Eng. Draft.				
	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid
Adams						76	$478	$450	38	$143	31	$98	$83	17	$24					
Alexander																				
Bond																				
Boone	1	$40		1		17	40	30	6	14						12	$40	$26	4	$12
Brown																				
Bureau						59	156	122	59	122						41	$35	214	41	214
Calhoun																				
Carroll	2	10	7	2	$7						4	19	19	4	19					
Cass	35	99	69	25	35	26	99	56	23	43	12	99	45	12	45					
Champaign	11	57	39	11	39	23	57	44	23	44	2	57	8	2	8					
Christian																				
Clark																				
Clay																				
Clinton																				
Coles						96		196	96	196	1		10	1	10					
Cook																				
Crawford						10	375	375	3	100										
Cumberland																				
DeKalb, Sycamore						24	86	66	24	66										
DeWitt																				
Douglas																				
DuPage	3	19	13	3	13	2	17	17	2	17	5	35	18	5	18	6	35	18	6	18
Edgar																				
Edwards																				
Effingham	1	15	10	1	10															
Fayette																				
Ford	5	120	30			17	68	6												
Franklin	15	157	52	10	44															
Fulton, Canton						30	100	78	30	78	36	100	85	36	85					
Fulton						69	118	112												
Gallatin	14	150	80	4	25						2	124	27	1	20					
Greene	9	109	57	6	42	42	112	104	30	75	18	112	65	18	65					
Grundy																				
Hamilton	6	102	14	6	14															

Hancock						2	15	15												
Hardin											32					27				
Henderson	2	18	18	2	18															
Henry						26	165	137	18	97										
Iroquois, Onarga	4	18	18	4	18	34	100	86	34	86	22	86	72	22	72					
Iroquois, Watseka	5	21	18	1	4	17	70	53	18	45										
Jackson		80																		
Jasper	10					15	177	139	13	95	16	60	36	16	36					
Jefferson	10	147	96	3	10	33	74	74	18	45	46	108	112	20	53	2	15			
Jersey						61	190	190	22	115										
Jo Daviess, Galena						10	18	16	10	16										
Jo Daviess						11	510	216								37	96	92	27	92
Johnson																				
Kane	1	45	10			23	145	73	23	40	28	125	58	28	58					
Kankakee											2	54	15	2	15					
Kendall	2	36	6	2	6	44	62	43	44	43						17	54	24	17	24
Knox																				
Lake, Waukegan						54	81	71	52	66		81				19	106	48	19	48
LaSalle	4	109	17	4	17	49	109	75	49	75	1	94	3	1	3	4	94	18	4	18
Lawrence																				
Lee																				
Livingston, Fairbury	8	134	42			64	154	124	59	117						11	511	308		169
Livingston																				
Logan, Lincoln	15	90	62	3	6	84	87	63	47	41	41	98	98	39	94					
Logan, Atlanta	20	200	200								6	86	34							
Macon																				
Macoupin																				
Madison																				
Marion																				
Marshall																				
Mason	3	81	23	1	10	15	385	345			1	76	10	1	10					
Massac																				
McDonough																				
McHenry, Woodstock						24	165	105	23	100						9	79	73	9	73
McHenry																				
McLean	11	125	59	11	59	51	115	93	51	93	30	125	106	30	106					
Menard	27	125	20	10	10	11	100	20	8	10						12	100	25	4	10
Mercer																27	81	81	27	81
Monroe																				
Montgomery																				
Morgan						47	899	890	18	158	30	123	123	9	50					
Moultrie	2	27	15	2	15	5	100	80	3	80										
Ogle, Oregon	9	78	39	9	36	13	78	45	13	45										
Ogle, Rochelle						31	89	83	21	54	23	89	59	11	40	25	89	74	15	49
Peoria																				
Perry	4	95	23	3	15															
Piatt	2	30	15	1	10	20	75	67	10	32						16	85	62	10	25
Pike	5	45	30	3	10															
Pope																				
Pulaski																				
Putnam																				
Randolph, Chester	1	50	20																	

Report of Pure-Bred Stock—Continued.

Counties.	Thoroughbred Horses.					Roadsters.					Norman and French Draft.					Clydesdale & English Draft				
	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	Owned in County. Number of entries	Owned in County. Amount of premiums paid
Richland																				
Rock Island, Port Byron						20	$180	$155	15	$100						20	$41	$25	20	$25
Rock Island																				
Saline																				
Sangamon																				
Schuyler																				
Scott																				
Shelby																16	79	64	16	64
Stark						11	54	44	2											
St. Clair	1	$33	$10			56	612	612			37	$70	$64							
Stephenson																				
Tazewell	4	98	27	2	$18	80	98	90	56	66	13	98	29	4		5	98	23		
Union																				
Vermilion																				
Vermilion, Hoopeston						99	165	126	23	48	39	206	124	16	50	15	50	50	10	30
Wabash																				
Warren																				
Washington																				
Wayne	4	84	18	1	3	25	90	71	13	34										
White	13	170	115	5	50	60	130	130	22	22	53	179	132	24	62					
Whiteside, Sterling																				
Will	2	100	20	2	20	21	100	72	21	72	2	15	7	2	7	3	15	8	3	8
Williamson	11	84	62	1	5															
Winnebago						31	68	57	24	50						14	68	44	14	44
Woodford	11	96	49	5	18						4	114	15	4	15					
Total	293	$3,097	$1,403	144	$587	1638	$7,166	$6,116	1064	$2,743	537	$2,581	$1,457	325	$965	338	$2,071	$1,277	246	$994

Report of Pure-Bred Stock—Continued.

Counties.	Cotswold Sheep.					Leicester and Other Long Wools.					Southdown.				
	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
ams						30	$31	$31	30	$31	18	$33	$33	18	$33
xander															
nd															
one						8	23	15	1						
own															
reau						34	134	113	34	113					
houn															
rroll						8	23	19	8	19	9	23	19	9	19
ss	4	$39	$13	4	$13						13	60	37	13	37
ampaign	10	20	20	10	20										
ristian															
rk	6	12	10	6	10										
y															
nton															
les						12		28	12	28	1		5	1	5
ok															
awford	2	15	15	2	15										
mberland															
Kalb—															
ycamore						17	30	30	11	12	4	30	13		
Witt						19	21	21							
uglas															
Page						4	16	7	4	7					
gar						2	10	10	2	10	1	10	10	1	10
wards	4	27	13	4	13						2	27	6	2	6
ingham	4	19	15	4	15						1	8	5	1	5
yette	17	15	15	17	15						5	15	6	5	6
rd															
anklin															
lton—															
anton						12	38	35	12	35					
lton—															
von						15	18	18			8	18	18		
llatin	7	24	15	1	2						4	24	8	4	8
eene						23	38	32	15	11	15	3	33	15	33
undy															
milton	4	12	4	4	4	10	12	10	5	4	9	12	9	4	5
ncock															
rdin		6													
nderson	4	12	8	4	8	5	12	9	5	9					
nry	9	30	28	9	28						3	30	14	3	14
quois—															
Vatseka						3	20	10	3	10					
kson							13								
per	15	38	34	15	34						14	36	30	14	30
ferson	16	34	34	15	29	1	4	4			12	34	34	8	16
sey															
Daviess—															
alena	20	50	43	20	43										
Daviess—															
Warren						17	24	24	17	24					
nson															
ne						4	55	16	4	16					
nkakee						5	34	20	5	20	4	34	16	4	16
ndall							23					23			
ox															
ke—															
Vaukegan	14	45	39	14	39	12	45	35	12	35	11	45	37	11	37
Salle	6	30	12	6	12						23	30	22	23	22
wrence															
ingston -															
airbury	11	36	32	11	32		36				7	36	26	7	26
gan—															
incoln						32	41	41	6	2	6	41	41		
gan—															
tlanta						11	18	18							
con															

Report of Pure-Bred Stock—Continued.

Counties.	Cotswold Sheep.					Leicester and Other Long Wools.					Southhdown.				
	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
Macoupin															
Madison															
Marion															
Marshall															
Mason	7	$25	$18									$29			
Massac											2	4	$4	2	$4
McDonough															
McHenry—Woodstock						11	$48	$43	4	$15	4	48	15	4	15
McHenry—Marengo						4	19	7	4	7	11	19	12	11	12
McLean						24	22	22	24	22					
Menard						10	48	15	5	5	14	48	15	4	5
Mercer						18	54	54	18	54					
Monroe															
Montgomery															
Morgan	38	78	78	38	$78						22	78	78	22	78
Moultrie	4	12	10	3	10						14	12	10		
Ogle—Oregon						6	18	12	6	12					
Ogle—Rochelle	13	36	30	13	30	6	36	12	6	12	1	36	5	1	5
Peoria															
Perry						7	17	14	7	14					
Piatt						6	16	16							
Pike						10	48	41	10	41	12	48	43	12	43
Pope	22		38	22	38	6		18	6	18					
Pulaski															
Putnam															
Randolph—Chester	5	24	21								5	24	20		
Richland						11	24	24	4	12	1	24	6	1	6
Rock Island—Port Byron	10	11	11	10	11										
Rock Island															
Saline															
Sangamon															
Schuyler															
Scott															
Shelby						16	28	25	16	25					
Stark						32	46	41	28						
St. Clair						13	16	15							
Stephenson															
Tazewell						46	29	29	31	11					
Union															
Vermilion															
Vermilion—Hoopeston						27	40	25	27	25					
Wabash															
Warren															
Washington															
Wayne						5	29	12	4	9					
White		28				7	28	22	4	8	13	28	27	13	27
Whiteside—Sterling						23	33	33			8	33	26		
Whiteside—Albany		6					6					6			
Will						9	39	16	9	16					
Williamson	7	12	11	7	11										
Winnebago						21	22	18	14	10					
Woodford															
Total	259	$696	$567	239	$510	602	$1,385	$1,060	413	$702	277	$1,050	$683	213	$533

Report of Pure-Bred Stock—Continued.

ounties.	Oxford and other Downs.					American Merino.					Spanish Merino and other Fine Wools.				
	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
ams											8	$31	$28	8	$28
xander															
id															
one	8	$22	$13	6	$13						20	23	23	8	17
wn															
eau															
houn															
roll															
s															
ampaign															
istian															
rk															
y															
nton															
es						10		$28							
ok															
wford						7	$21	21	7	$21					
mberland															
Kalb															
Witt	6	21	9	3	4						4	21	12	4	12
uglas															
Page	5	14	7	5	7						10	16	16	10	16
gar											1	10	10	1	10
wards											3	27	6	3	6
lngham	1	8	5	1	5	11	39	39							
yette															
rd															
anklin															
lton—															
anton	14	38	34	14	34						17	38	34	17	34
von						8	18	18							
llatin						1	5	2	1	2					
eene															
undy															
milton															
ncock															
rdin															
nderson											5	12	9	5	9
nry							30								
oquois—															
Watseka											7	20	17	7	17
ckson												13			
sper											8	38	24	8	24
fferson						9	34	31							
rsey															
Daviess															
hnson															
ane											8	55	36	8	36
ankakee															
endall											11	23	30	11	30
nox															
ake—															
Waukegan		45				20	45	45	20	45					
aSalle											11	30	21	11	21
awrence															
ee															
ivingston—															
Fairbury							36								
ogan—															
Lincoln											26	40	40	13	20
Atlanta	10	18	18								19	18	18		
acon															
acoupin															
adison															
larion															
larshall															
lason												29			

Report of Pure-Bred Stock—Continued.

Counties.	Oxford and other Downs.					American Merinos.					Spanish Merino and other Fine Wools.				
	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	Number of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
Massac															
McDonough															
McHenry—															
Woodstock											9	$48	$33	9	$33
Marengo						9	$19	$13							
McLean	6	$20	$15	6	$15						8	20	20	8	20
Menard											5	48	15		
Mercer						13	48	48	4	$9					
Monroe															
Montgomery															
Morgan															
Moultrie	8	12	10												
Ogle—															
Oregon	3	18	6	3	6							18			
Rochelle	4	19	10	4	10	4	13	13	4	13	10	19	19	10	19
Peoria															
Perry												13			
Piatt	5	16	14	5	14						4	16	12	4	12
Pike											10	26	26	10	26
Pope															
Pulaski															
Putnam															
Randolph															
Richland											8	39	24	4	15
Rock Island															
Saline															
Sangamon															
Schuyler															
Scott															
Shelby	19	28	28	19	28	23	48	48	23	48					
Stark	10	46	31	10		10									
St. Clair	36	16	16												
Stephenson															
Tazewell	20	29	24	8	5						14	29	29		
Union															
Vermilion—															
Hoopeston						10	24	16	10	16					
Wabash															
Warren															
Washington															
Wayne											10	29	22	10	22
White		28					28					28			
Whiteside—															
Sterling											9	33	20		
Will											16	41	27	16	27
Williamson											7	12	9	7	9
Winnebago	22	22	22	10	8						12	22	22	12	22
Woodford															
Total	177	$420	$262	94	$149	135	$408	$322	69	$154	280	$885	$602	204	$495

Report of Pure-Bred Stock—Continued.

Counties.	Berkshire Swine.					Poland China.					Chester White.				
	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
Adams	17	$63	$59			58	$63	$63	14						
Alexander															
Bond															
Boone	13	37	31	13	31	15	37	30	14	$27	8	$37	$23	8	$23
Brown															
Bureau	12	59	40	12	40	42	59	60	42	60	13	59	41	13	41
Calhoun															
Carroll	8	34	29	8	29	6	28	23	6	23	3	15	12	3	12
Cass	10	75	41			19	75	48	3	6	17	75	47		
Champaign	4	26	12	4	12	28	28	26	28	26					
Christian															
Clark	4	20	12	4	12	2	20	8	2	8					
Clay															
Clinton															
Coles	29		81	1		32		79	28						
Cook															
Crawford	2	17	17	1	10	3	24	24	1	10	2	10	10	2	10
Cumberland	6	24	19												
DeKalb—Sycamore	22	39	23			9	39	24	3	3					
DeWitt															
Douglas	6	36	8			39	94	41	21	32					
DuPage						5	20	17	5	17					
Edgar	20	81	81	20	81	17	81	81	17	81					
Edwards	13	55	41	13	41	4	55	17	4	17					
Effingham						2	17	11	2	11					
Fayette	3	20	10	3	10	5	20	14	5	14					
Ford—Paxton	5	56				27	54								
Franklin	6	22	12	6	12										
Fulton—Canton	2	66	4	2	4	46	66	55	46	55	8	66	30	8	30
Fulton—Avon	29	68	68			41	68	68			23	68	2		
Gallatin	12	49	45	8	25	11	43	38	11	38	1	46	4	1	4
Greene															
Grundy															
Hamilton	13	23	22	2	6	6	20	10	6	10					
Hancock															
Hardin		4				1	4	3							
Henderson	15	44	36	15	36	19	44	44	19	44					
Henry		42				22	42	42	22	42	9	42	38	9	38
Iroquois—Onarga	10	38	18	10	18	20	38	32	22	32					
Iroquois—Watseka	13	36	36	13	36	27	36	36	27	36	1	36	8	1	8
Jackson		15					15					15			
Jasper	22	64	56	22	56	18	64	64	10	12					
Jefferson	17	36	36	17	23	13	36	29	13	29					
Jersey															
JoDaviess—Galena	10	59	54	10	54		59					59			
JoDaviess—Warren						1	13	4	1	4	2	13	4	2	4
Johnson															
Kane	8	42	16	1	6	9	42	38	9	38					
Kankakee						12	64	37	12	37					
Kendall	19	53	34	19	34	14	53	26	14	26		53			
Knox															
Lake—Waukegan	9	45	30	5	15	13	45	34	4	4	5	45	21	5	21
LaSalle						18	37	26	18	26	6	37	11	6	11
Lawrence															
Lee															
Livingston—Fairbury	2	40	7	2	7	17	48	43	17	43	4	40	23	4	23
Logan															
Lincoln	48	70	70	26	39	39	70	60	31	48	21	70	63	3	

Report of Pure-Bred Stock—Continued.

Counties.	Berkshire Swine.					Poland China.					Chester White.				
	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county: Number of entries	Owned in county: Amount of premiums paid
Logan—Atlanta	8	$41	$26			15	$41	$34			14	$41	$39		
Macon															
Macoupin															
Madison															
Marion															
Marshall															
Mason	2	52	8	2	$8						3	52	13	3	$13
Massac	2	7	7	1	3	7	18	10	2	$3					
McDonough															
McHenry—Woodstock	3	28	5	3	5	12	37	37	12	37					
McHenry—Marengo	15	30	28	15	28	11	30	25	4	9		30			
McLean	23	51	48	23	48	8	59	20	8	20		59			
Menard	10	80	15	8	15	6	80	10	2		15	80	10	8	10
Mercer	22	61	61	22	61	52	60	60	52	60	9	15	15	9	15
Monroe															
Montgomery															
Morgan	33	99		24	46	28	99		16	27	18	99		14	43
Moultrie	28	58	58	17	50	2	56	9	2	9					
Ogle—Oregon		12	7		7		12								
Ogle—Rochelle	9	46	33	9	33	23	46	46	23	46					
Peoria															
Perry	14	27	20	14	20	9	27	17	9	17					
Piatt	12	25	15	12	15	6	25	25				25			
Pike	20	63	54	20	54	17	66	66	17	66	15	61	51	15	51
Pope	11		16	11	16	9		17	9	17	1			1	
Pulaski															
Putnam															
Randolph—Chester	8	28	28												
Richland	21	120	78	12	48	28	120	71	11	37	21	120	63	12	37
Rock Island—Port Byron	2	26	3	2	3	8	26	14	8	14	6	26	12	6	12
Rock Island															
Saline															
Sangamon															
Schuyler															
Scott															
Shelby	21	40	40	9	7	30	52	49	16	15					
Stark	13	36	36	10		29	36	36	20		6	36	22	6	22
St. Clair	4	21	11			6	21	18			3	21	2		
Stephenson															
Tazewell	10	65	34	10	34	18	65	58	15	45	15	65	45		
Union															
Vermilion															
Vermilion—Hoopeston	20	71	40	8	15	55	71	82	37	44					
Wabash															
Warren															
Washington															
Wayne	6	46	12			12	46	31			9	46	22	9	22
White	17	33	31	1		15	33	31	15	31	4	33	17	4	17
Whiteside															
Whiteside—Albany		10				1	10	3	1	3		10			
Will						28	77	56	28	56	11	77	39	11	39
Williamson	10	45	40	9	35										
Winnebago	23	36	34	5	9	12	36	28	12	28	6	36	22		
Woodford															
Total	776	$2,615	$1,836	484	$1,197	1007	$2,870	$2,108	786	$1,443	279	$1,718	$709	168	$506

Report of Pure-Bred Stock—Continued.

Counties.	Essex.					Suffolk.					Small Yorkshire.				
	No. of entries	Amount premiums offered	Amount premiums paid	Owned in county		No. of entries	Amount premiums offered	Amount premiums paid	Owned in county		No. of entries	Amount premiums offered	Amount premiums paid	Owned in county	
				No. of entries.	Am't pr'mium paid				No. of entries.	Am't pr'mium paid				No. of entries.	Am't pr'mium paid
lams															
exander															
ond															
bone						10	$37	$20	6	$7					
rown															
ureau	9	$26	$26	9	$26		26								
lhoun															
rroll	1														
ass															
ampaign															
ristian															
ark															
ay															
inton															
bles															
ook															
rawford															
umberland															
eKalb															
eWitt															
ouglas															
uPage	2	20	9	2	9										
dgar															
dwards															
fingham															
ayette															
ord															
ranklin															
ulton															
allatin															
reene															
rundy															
amilton															
ancock															
ardin															
enderson															
enry															
oquois															
ckson															
asper															
efferson															
ersey															
Daviess—															
Galena		59													
ohnson															
ane															
ankakee															
endall		53													
nox															
ake—															
Waukegan		45				8	45	26	8	26					
aSalle	11	37	18	11	18										
awrence															
ee															
ivingston															
ogan															
acon															
acoupin															
adison															
arion															
arshall															
ason															
assac															
cDonough															
cHenry—															
Marengo											7	$43	$18		
cLean															
enard															

Report of Pure-bred Stock—Continued.

Counties.	Essex.					Suffolk.					Small Yorkshire				
	No. of entries	Amount premium offered	Amount premium paid	Owned in county		No. of entries	Amount premium offered	Amount premium paid	Owned in county		No. of entries	Amount premium offered	Amount premium paid	Owned in county	
				No. of entries	Am't pr'mium paid				No. of entries	Am't pr'mium paid				No. of entries	Am't pr'mium paid
Mercer															
Monroe															
Montgomery															
Morgan	8	$99		8	$58										
Moultrie															
Ogle															
Peoria															
Perry											1	$12	$4	1	$4
Piatt															
Pike															
Pope															
Pulaski															
Putnam															
Randolph—Chester						2	$28	$11							
Richland															
Rock Island—Port Byron		2													
Saline															
Sangamon															
Schuyler															
Scott															
Shelby															
Stark	16	36	36	16	36										
St. Clair						4	21	11			15	21	21		
Stephenson															
Tazewell															
Union															
Vermilion															
Wabash															
Warren															
Washington															
Wayne	4	12	12	4	12										
White		33					33					33			
Whiteside—Albany	1	10	2	1	2										
Will						17	77	69	17	69					
Williamson															
Winnebago															
Woodford															
Total	52	$456	$103	51	$161	41	$267	$137	31	$102	23	$109	$43	1	$4

AGRICULTURAL STATISTICS FOR 1879,

AS RETURNED BY ASSESSORS, MAY, 1880.

Counties.	Corn.		Winter Wheat.		Spring Wheat.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
dams	88,422	3,163,897	67,242	1,217,899	336	3,451
lexander	10,239	343,820	7,498	113,356	43	410
ond	.....	.....	.....	.....	.....	.....
oone	28,055	1,222,755	888	19,505	3,323	29,242
rown	34,050	991,992	21,045	367,899	87	1,115
ureau	183,152	7,028,383	1,884	35,624	18,492	206,331
alhoun	14,715	483,929	17,217	245,365	.....	.....
arroll	63,733	2,634,652	9,461	159,733	6,502	63,779
ass	50,559	1,662,550	18,506	369,996	636	6,743
hampaign	227,029	8,540,225	15,818	378,246	852	10,326
hristian	142,035	5,341,558	54,159	1,355,964	1,260	15,629
lark	45,857	1,148,567	37,924	497,476	14	115
lay	32,225	750,368	21,609	184,454	.....	.....
linton	48,893	1,431,237	74,762	1,343,193	1,039	25,240
oles	71,201	2,535,947	26,941	365,265	233	4,213
ook	53,347	1,373,628	221	4,655	3,716	35,547
rawford	35,300	920,962	37,987	452,195	.....	.....
umberland	29,806	1,005,653	23,803	253,118	24	261
eKalb	115,281	4,064,155	300	5,595	7,952	62,208
eWitt	79,503	3,325,554	5,096	121,902	3,128	35,718
ouglas	74,290	3,052,796	8,346	186,647	342	4,241
uPage	31,773	930,801	344	7,298	3,291	41,088
dgar	117,558	3,444,853	33,220	563,989	119	2,379
dwards	19,281	614,372	22,951	349,021	.....	.....
ffingham	37,547	1,133,491	39,053	292,830	2	20
ayette	51,152	1,368,388	48,288	492,363	17	110
ord	126,855	3,976,120	502	10,511	348	3,017
ranklin	19,847	532,668	26,955	298,479	25	380
ulton	110,017	3,943,651	24,786	520,965	8,319	81,646
allatin	27,117	820,006	19,217	260,365	33	320
reene	53,514	2,225,300	50,893	1,009,789	110	3,085
rundy	91,486	3,073,545	303	4,309	404	4,401
amilton	24,748	663,038	28,308	320,200	.....	.....
ancock	125,192	4,420,472	26,966	525,350	4,073	36,830
ardin	9,455	237,300	4,116	35,698	43	390
enderson	68,836	2,560,420	7,096	143,191	6,464	65,882
enry	193,637	8,064,585	1,179	24,006	10,850	87,272
roquois	249,194	7,808,397	4,712	93,787	864	7,869
ackson	27,265	816,275	49,906	672 976	119	1,262
asper	20,685	778,813	21,190	150,400	.....	.....
efferson	35,265	987,759	47,823	580,933	20	400
ersey	34,448	1,153,355	49,349	896,019	27	275
oDaviess	55,027	2,187,964	5,298	104,054	4,182	47,719
ohnson	20,186	509,968	18,522	181,032	1	11
ane	50,365	5,786,901	230	4,049	3,173	34,326
ankakee	127,750	3,409,615	1,452	31,225	2,049	43,103
endall	73,894	2,442,699	175	3,805	2,020	20,188
nox	151,065	5,646,676	3,810	79,522	10,132	72,475
ake	22,293	1,002,045	31	364	2,412	31,754
aSalle	252,569	10,193,870	1,164	27,887	14,052	153,277
awrence	31,562	804,740	38,192	520,580	500	4,921

Agricultural Statistics, 1879—Continued.

Counties.	Corn.		Winter Wheat.		Spring Wheat.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
Lee						
Livingston	272,756	9,871,525	1,934	30,203	3,517	19,948
Logan	156,119	6,063,396	10,181	277,557	2,612	31,496
Macon	119,423	4,240,871	15,166	327,908	2,344	23,209
Macoupin	102,827	4,184,433	99,129	1,970,699	81	1,362
Madison	89,576	3,547,107	117,980	3,350,215		
Marion	39,732	1,253,740	37,221	376,646		
Marshall	79,611	3,063,866	986	19,722	3,889	35,005
Mason						
Massac	15,348	351,697	19,846	197,373	6	60
McDonough	99,440	3,979,842	11,242	180,671	14,418	173,016
McHenry	55,383	2,033,984	531	12,236	7,619	94,621
McLean	272,137	10,683,762	6,545	146,979	8,177	87,333
Menard	60,052	1,625,109	13,518	265,907	525	4,856
Mercer	105,944	4,709,120	1,613	34,534	14,699	116,429
Monroe	17,882	530,721	50,787	940,425		
Montgomery	105,047	4,134,126	86,426	1,815,759		
Morgan	101,297	3,545,395	41,178	1,200,000	1,000	20,000
Moultrie	58,520	2,247,537	12,550	253,279	129	1,911
Ogle	114,314	4,599,577	5,277	112,442	11,212	97,055
Peoria	120,423	4,177,494	5,307	105,765	6,119	44,468
Perry	11,633	349,415	33,964	433,982	10	100
Piatt	97,153	3,312,561	8,246	156,794	721	8,473
Pike	73,120	2,738,376	89,923	2,459,835	273	4,195
Pope	23,241	651,032	16,128	192,363		
Pulaski	11,880	415,800	12,112	181,680		
Putnam	30,556	1,239,355	536	9,761	3,245	33,223
Randolph	27,907	832,117	80,602	1,341,743		
Richland	26,334	639,371	34,721	376,965	5	50
Rock Island	65,053	2,841,228	987	16,916	7,830	72,743
Saline	21,947	581,515	19,305	221,133	44	445
Sangamon	155,346	5,360,174	39,606	857,542	1,519	16,305
Schuyler	44,887	1,540,726	24,047	404,990	759	6,277
Scott	30,096	1,082,855	23,966	524,572		
Shelby	88,509	3,031,379	41,968	664,269	242	3,162
Stark	68,705	2,820,770	359	7,313	3,878	30,240
St. Clair	43,960	1,794,745	124,182	2,621,382	131	3,325
Stephenson	77,851	3,045,516	9,436	236,149	12,070	119,776
Tazewell	123,239	4,466,539	15,326	342,250	5,064	51,129
Union	19,775	556,579	25,137	296,044	53	400
Vermilion	151,337	5,153,382	39,308	610,384	640	7,334
Wabash	16,882	558,090	25,385	419,414		
Warren	121,803	5,039,740	1,735	39,852	10,999	85,984
Washington	31,240	828,067	83,021	1,232,240	13	203
Wayne	42,002	1,010,156	36,245	388,004	4	50
White	49,070	1,485,303	53,976	692,516		
Whiteside	113,278	4,356,213	2,845	55,183	12,378	124,364
Will	131,228	3,664,346	769	17,348	3,113	31,551
Williamson	21,949	612,266	23,479	245,094		
Winnebago	72,981	2,689,748	1,720	46,480	5,500	55,619
Woodford	117,084	4,060,688	4,292	69,682	8,433	71,374
Total	7,592,152	274,161,028	2,427,481	43,663,284	274,899	2,725,490

Agricultural Statistics, 1879—Continued.

Counties.	Oats.		Rye.		Barley.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
lams	22,550	618,853	715	10,941	86	2,440
exander	597	13,086	4	75	.....	.....
ond	.....	.....	.....	.....	.....	.....
bone	21,668	762,351	1,447	19,006	487	11,065
rown	4,307	90,033	409	4,986	.....	.....
ureau	30,330	1,023,142	1,700	30,369	1,560	29,793
lhoun	1,216	26,018	6	90	.....	.....
arroll	24,953	927,533	5,082	74,181	5,021	105,934
ass	6,107	144,749	508	4,303	20	420
hampaign	35,468	1,343,668	3,378	55,665	2	35
hristian	20,651	677,910	899	15,332	293	5,288
lark	8,469	186,762	225	2,472	.....	.....
lay	6,983	138,634	225	1,726	2	65
linton	15,709	378,209	39	453	10	200
oles	10,885	339,134	281	3,520	80	1,119
ook	54,302	1,872,610	1,046	17,182	193	4,761
rawford	8,764	106,422	99	918	10	400
umberland	8,127	166,728	353	2,814	17	191
eKalb	47,484	1,702,020	806	14,982	2,576	56,266
eWitt	13,805	339,967	2,601	43,683	19	339
ouglas	9,919	273,861	907	14,088	21	658
uPage	30,439	1,216,753	1,620	34,774	135	3,221
dgar	13,307	368,989	449	5,160	19	278
dwards	2,539	47,078	.....	.....	7	63
fingham	14,527	357,192	407	3,659	7	30
ayette	11,416	262,760	376	3,210	.....	.....
ord	13,640	439,620	1,160	18,903*	41	370
ranklin	4,080	63,285	16	.....	10	154
ulton	19,027	476,598	8,537	141,651	93	1,270
allatin	1,499	20,918	41	360	.....	.....
reene	3,547	95,603	47	650	.....	.....
rundy	10,492	342,030	1,865	25,512	77	1,397
amilton	2,999	50,418	27	336	.....	.....
ancock	33,058	998,007	3,097	45,938	10	136
ardin	1,536	15,766	35	232	.....	.....
enderson	10,392	291,255	3,587	47,019	53	1,355
enry	27,817	1,041,821	4,145	75,441	743	12,583
oquois	34,436	1,148,867	3,628	51,664	129	2,070
ackson	3,838	63,044	80	1,133	79	1,596
asper	6,488	130,335	212	1,527	.....	.....
efferson	9,232	153,546	99	734	28	560
ersey	3,598	83,593	11	85	.....	.....
oDaviess	30,347	1,010,128	2,683	24,561	881	18,390
ohnson	1,716	24,380	9	80	.....	.....
ane	29,710	8,664,179	1,495	31,332	458	8,717
ankakee	28,572	936,145	3,129	47,078	227	7,494
endall	18,879	761,852	277	5,135	35	600
nox	32,253	1,004,822	4,973	75,890	178	3,233
ake	22,679	1,151,078	501	7,454	113	2,561
aSalle	49,004	2,004,870	3,252	60,292	908	20,920
awrence	3,700	52,725	107	1,147	182	6,174
ee	.....	.....	.....	.....	.....	.....
ivingston	46,795	1,378,381	6,405	104,834	61	666
ogan	17,313	499,450	2,022	35,310	193	4,350
acon	18,782	782,074	1,499	24,617	86	1,583
acoupin	18,407	510,201	200	2,967	20	540
adison	13,196	334,887	56	802	.....	.....
arion	11,419	286,327	509	4,376	1	15
arshall	18,459	596,687	2,285	39,723	1	20
ason	.....	.....	.....	.....	.....	.....
assac	1,129	12,578	3	71	.....	.....
cDonough	23,654	719,620	5,760	114,444	.....	.....
cHenry	35,065	1,215,491	1,080	16,748	765	17,107
cLean	57,334	1,950,650	8,823	161,415	349	6,877
enard	8,839	211,968	325	4,261	80	1,522
ercer	18,011	601,370	3,131	40,991	55	503
onroe	5,747	87,764	27	654	87	2,665
ontgomery	21,566	547,525	1,561	21,091	46	1,045
organ	10,160	416,560	5,023	60,000	200	3,000
oultrie	9,901	344,897	493	7,070	90	918
gle	54,205	1,972,202	4,052	98,690	8,825	187,552
eoria	29,210	831,044	7,761	92,814	25	130
erry	5,231	82,400	23	330	.....	.....
iatt	17,746	663,941	2,036	24,249	29	621

Agricultural Statistics, 1879--Continued.

Counties.	Oats.		Rye.		Barley.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
Pike	6,081	123,950	160	2,215	.....	.....
Pope	4,092	83,086	20	166	.....	.....
Pulaski	620	18,600	.....	.....	.....	.....
Putnam	4,571	166,578	928	13,271	16	280
Randolph	10,522	187,732	16	307	17	776
Richland	5,923	82,469	11	143	20	750
Rock Island	11,800	381,626	3,240	42,441	710	14,412
Saline	2,172	33,042	4	10	.....	.....
Sangamon	13,855	408,253	1,707	24,438	290	3,968
Schuyler	6,635	127,384	656	7,447	19	107
Scott	566	14,835	60	1,127	.....	.....
Shelby	17,850	480,820	1,102	13,659	3	60
Stark	13,033	445,925	1,162	17,079	5	45
St. Clair	12,270	286,635	17	264	333	12,277
Stephenson	35,622	1,287,644	9,827	183,911	11,456	256,830
Tazewell	27,780	850,581	5,151	78,783	164	1,848
Union	4,332	65,284	4	100	9	135
Vermilion	19,713	665,369	1,146	16,881	112	1,643
Wabash	1,806	28,679	42	380	8	115
Warren	28,662	909,258	1,751	31,552	38	329
Washington	17,739	389,942	75	883	1	10
Wayne	9,297	147,964	103	959	.....	.....
White	3,650	53,908	16	168	1	.....
Whiteside	27,573	987,871	5,760	100,679	2,505	56,254
Will	67,462	2,388,839	1,414	26,784	78	2,005
Williamson	3,201	48,898	10	52	.....	.....
Winnebago	42,949	1,450,319	8,413	123,919	1,155	27,595
Woodford	34,837	1,104,614	4,451	78,076	564	9,611
Total	1,703,843	61,665,473	166,915	2,648,893	43,227	980,250

Agricultural Statistics, 1879—Continued.

'ounties.	Tim'thy Meadow.		Clover Meadow.		Prairie.		Hungarian and Millet.	
	Acres.	Tons produced.	Acres.	Tons produced.	Acres.	Tons produced.	Acres.	Tons produced.
ıms	24,213	16,494	3,224	3,489	20	40	21	22
xander	316	288	215	228	3	.....	10	11
nd	.....	.....	.....	.....	.....	.....	.....	.....
one	14,075	25,738	2,776	4,114	7,400	9,439	52	81
ɔwn	7,422	5,262	1,981	1,934	12	9	4	6
reau	31,050	38,053	883	1,224	12,117	14,768	72	163
lhoun	1,024	607	1,010	751	147	115	6	4
rroll	18,310	28,593	6,084	10,427	2,544	3,647	21	50
ss	3,562	2,499	40	22	726	764	14	13
ampaign	31,984	35,038	310	327	2,101	2,028	263	809
ristian	29,365	25,016	172	204	1,587	301	37	33
ırk	14,754	14,329	1,132	1,266	2	3	3	16
ıy	25,823	7,450	10	7	67	63	17	28
nton	10,676	8,296	61	51	131	54	16	26
les	19,052	19,430	515	757	126	139	335	546
ok	30,636	34,496	1,125	1,823	72,366	71,783	1,103	751
ıwford	11,520	9,743	306	299	117	157	20	22
mberland	13,738	10,325	26	16	3	6	26	24
Kalb	36,748	52,270	4,178	5,552	27,736	28,398	179	367
Witt	13,208	12,836	59	94	268	259	27	116
uglas	16,703	18,783	583	558	220	219	217	463
Page	23,004	31,470	298	443	15,321	17,668	100	190
ɣar	26,420	29,394	535	729	470	374	185	350
wards	7,522	5,974	520	570	44	32	.....	.....
ngham	16,497	9,969	28	18	960	472	28	28
ɣette	13,902	8,220	347	346	266	400	111	201
d	18,574	18,657	185	270	2,974	2,879	245	906
nklin	2,714	1,312	419	433	604	330	7	46
ton	23,635	18,901	7,593	8,161	109	159	11	12
latin	1,745	1,729	1,217	1,079	.....	.....	7	4
ene	11,235	7,794	889	699	410	10	23	42
ndy	15,010	18,250	289	389	13,451	13,461	121	195
ılton	5,157	4,849	364	331	.....	.....	.....	.....
·ock	34,532	24,606	1,835	1,661	455	520	15	13
lin	1,162	790	976	356	.....	.....	27	48
ierson	9,496	8,101	169	174	384	397	6	4
·y	30,254	42,110	1,103	1,740	12,372	16,567	247	543
ıois	41,574	45,739	488	678	10,898	9,647	1,029	3,568
son	3,201	3,202	2,582	2,657	.....	.....	100	180
ɜr	12,234	7,837	176	71	400	190	17	13
·son	7,980	5,411	94	61	708	460	22	29
y	6,800	3,836	1,160	771	5	.....	4	2
·iess	26,533	32,088	6,112	7,460	2,806	2,613	.....	.....
on	1,398	1,222	2,621	2,311	.....	.....	8	5
	33,037	50,813	2,489	4,101	16,666	20,721	361	594
ıkee	29,630	40,808	1,008	1,167	16,410	19,384	536	2,697
ıll	19,431	26,572	2,150	3,391	9 422	11,042	85	123
	38,288	31,186	1,843	1,757	472	506	133	153
	18,374	33,216	1,816	2,346	24,931	28,562	128	201
lle	45,613	52,118	1,580	2,500	30,300	32,247	1,806	3,200
ence	7,247	5,152	1,058	872	30	50	2	2
	.....	.....	.....	.....	.....	.....	.....	.....
gston	41,332	4,312	1,141	1,371	16,851	16,004	409	628
n	12,814	10,984	222	261	565	502	50	58
n	15,152	14,475	387	369	468	425	64	98
ıupin	28,254	18,781	765	657	119	.....	82	121
son	14,228	12,624	729	858	.....	.....	247	254
on	12,319	8,304	1,883	1,640	582	234	36	41
shall	13,858	13,841	630	852	2,379	2,718	53	116
on	.....	.....	.....	.....	.....	.....	.....	.....
sac	1,880	1,235	985	414	23	2	30	40
)onough	20,142	15,984	2,106	2,070	90	54	.....	.....
Henry	29,020	40,437	7,823	11,619	24,769	28,843	658	1,150
Lean	50,058	48,270	1,593	1,909	2,835	2,595	143	218
nard	8,315	5,407	142	98	59	25	14	21
ercer	20,857	24,425	567	92	1,384	1,816	30	64
ssroe	2,283	2,042	4,316	2,924	.....	.....	57	55
ontgomery	27,573	16,176	253	171	5	2	1,095	878
organ	34,794	34,194	1,300	1,300	109	75	30	100
oultrie	9,142	9,180	203	239	202	207	132	291
ıge	20,720	31,859	16,322	25,714	5,668	7,433	62	96
oria	26,075	20,593	3,838	4,416	790	894	91	146
rry	2,356	2,086	114	94	6	6	57	95

Agricultural Statistics, 1879—Continued.

Counties.	T'MOTHY MEADOW		CLOVER MEADOW.		PRAIRIE.		HUNGARIAN AND MILLET.	
	Acres.	Tons produced.	Acres.	Tons produced.	Acres.	Tons produced.	Acres.	Tons produced.
Piatt	12,624	12,066	256	218	546	497	188	[illegible]
Pike	13,186	9,920	3,154	3,020	133	133	28	[illegible]
Pope	1,873	1,895	890	969	.....	.....	30	[illegible]
Pulaski	2,000	2,500	1,000	2,000	.....	.....	.....	.....
Putnam	5,588	6,288	410	502	543	632	58	[illegible]
Randolph	4,863	3,865	3,555	2,779	11	14	155	[illegible]
Richland	11,265	6,266	414	296	2,348	1,222	1	[illegible]
Rock Island	13,725	20,604	825	1,139	9,109	13,065	35	[illegible]
Saline	2,777	2,026	452	286	.....	.....	4	[illegible]
Sangamon	23,779	17,037	622	679	90	56	70	[illegible]
Schuyler	9,306	6,514	3,392	3,412	73	31	20	[illegible]
Scott	4,453	3,009	127	103	18	18	.....	.....
Shelby	25,761	17,403	165	95	105	62	211	[illegible]
Stark	10,908	9,889	494	898	1,121	1,074	41	[illegible]
St. Clair	8,249	7,320	3,997	2,830	19	26	22	[illegible]
Stephenson	15,118	443	12,785	19,620	5,783	8,457	67	[illegible]
Tazewell	20,518	18,104	2,166	2,830	1,597	1,865	87	[illegible]
Union	1,757	1,670	2,971	2,635	.....	.....	11	[illegible]
Vermilion	36,636	42,665	359	575	1,479	1,313	573	[illegible]
Wabash	3,220	3,121	1,130	995	1,195	833	.....	.....
Warren	22,403	21,493	580	752	250	206	29	[illegible]
Washington	4,515	3,981	177	97	38	13	88	[illegible]
Wayne	8,978	6,279	397	272	10,424	6,477	19	[illegible]
White	5,842	5,025	2,513	2,253	.....	.....	11	[illegible]
Whiteside	20,132	28,838	4,800	7,374	15,572	19,067	219	[illegible]
Will	39,811	52,184	3,775	5,492	36,365	42,745	645	[illegible]
Williamson	2,599	2,171	1,665	1,620	.....	.....	9	[illegible]
Winnebago	17,676	25,253	6,904	10,705	7,633	10,444	59	[illegible]
Woodford	19,731	27,065	2,583	2,649	2,138	2,066	73	[illegible]
Total	1,647,443	1,637,525	174,461	215,677	432,046	483,064	13,995	[illegible]

Agricultural Statistics, 1879—Continued.

Counties.	Buckwheat.		Castor Beans.		Beans.		Peas.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
ms	125	787			45	836	4	275
:ander					10	1,147	8	1,180
d								
ne	559	6,673			5	63	10	202
wn	34	183			9	87		
eau	68	783			9	135	5	214
ioun	2	21						
:oll	84	1,008			5	74	9	254
s	14	265			1	24	2	140
mpaign	248	2,897		8	29	358	7	160
istian	43	499		10	15	175	1	16
k	232	2,808		6	206	1,942		29
7	85	1,066	10		100	1,044	5	154
ton	3	41	220	1,912	10	95		
s	71	892			24	310	3	95
k	61	333			5	194	160	16,959
wford	138	1,750	16	181	32	287		
nberland	183	2,811	104	1,320	137	1,060	48	448
:alb	521	5,005			22	318		
Vitt	23	363			7	122	1	27
iglas	102	893			7	126	1	20
'age	60	420			3	42		
:ar	127	136	1	16	13	222	3	85
vards								
ngham	65	901			30	501	1	10
ette	112	1,238	42	734	26	284		
d	95	1,113		5	8	101	12	309
nklin	17	100	522	3,782	11	27	10	50
ton	355	3,019	11	37	35	286	7	10
latin			4	28				
ene	11	21			8	148	1	7
ndy	70	538		2	22	321	4	85
milton			175	1,109	2	35		
ncock	155	1,750			16	223	9	14
:din	7	115			3	57		
nderson	45	324			16	121		
ary	129	1,547	8	52	7	160	16	370
quois	574	5,063			71	907	2	46
kson	44	492	3	25	4	18	1	87
per	229	2,404	3	91	74	1,061	1	30
ferson	24	122	403	2,105	23	170	1	112
sey					17	130	1	4
Daviess	226	2,646	5	175	54	784	10	147
nson	1	14	102	125			7	7
ne	364	3,498	83	1,057	10	168	1	47
nkakee	201	1,520			12	126		
ndall	94	848			2	40	1	5
ox	213	1,801			95	959	1	26
ke	119	1,514	2	46	24	418	4	90
Salle	246	2,682	8	260	30	754	5	351
wrence	110	1,439			58	531	1	10
e								
ingston	246	2,453			101	1,269	8	83
gan	21	318	1	10	6	145	1	20
con	35	439	1	6	18	390	2	45
coupin	11	129	36	544	9	168	1	6
dison	1	40						
rion	158	1,880	62	678	137	1,671	1	37
rahall	28	377			5	125	1	15
son								
ssac					3	20	16	120
Donough	180	1,672		1	17	378		
Henry	1,043	10,406			75	942	6	121
Lean	124	1,173	3	23	89	1,002	1	12
nard					8	54		
rcer	127	1,213			35	461	1	47
onroe								
ontgomery	40	254	4	86	13	250	3	160
organ	10	100			50	400	40	1,200
oultrie	22	272			12	131		
gle	272	3,194	4	60	31	740	16	150
oria	147	1,535			30	423	7	455
rry			4	80				

Agricultural Statistics, 1879—Continued.

Counties.	Buckwheat.		Castor Beans.		Beans.		Peas.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Bushels produced.
Piatt	105	1,573	1	18	27	454	1	3
Pike	14	117			26	121	13	59
Pope	2	21			1	17	1	25
Pulaski					100	4,000	150	6,000
Putnam	12	141						
Randolph	13	169	74	842	1	32	1	26
Richland	115	1,611			17	329	1	2
Rock Island	174	1,907	1	3	7	142		
Saline			105	789				
Sangamon	4	27			20	180	3	12
Schuyler	120	1,008			12	97		2
Scott								
Shelby	137	1,827		13	45	563		
Stark	54	339			8	91		
St. Clair	9	131	8	200	8	530	84	9,635
Stephenson	193	2,421			42	329		
Tazewell	142	1,746			26	229		
Union	17	84			2	26	1	
Vermilion	167	1,996		8	40	901	13	29
Wabash	12	129	15	165				
Warren	77	871			49	80		
Washington	17	32	155	1,287	19	124	1	6
Wayne	120	1,305	627	4,398	110	999	1	1
White	2	25	13	66	3	16	1	10
Whiteside	190	1,976			11	123	3	32
Will	134	980			30	456	7	154
Williamson			207	1,397	1	2		
Winnebago	140	1,729	19	142	73	772	30	89
Woodford	61	817	31	442	5	43	1	20
Total	10,786	112,180	3,084	24,344	2,674	36,217	779	42,668

Agricultural Statistics, 1879—Continued.

Counties.	Irish Potatoes.		Sweet Potatoes.		Turnips and other Root Crops.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Value of crop produced.
ams	1,895	91,668	38	2,904	56	$1,914
xander	151	16,964	15	1,725	23	830
ıd	.....	.....	.....	.....	.....	.....
one	469	35,663	1	40	7	2,051
wn	348	16,181	4	281	15	1,421
eau	1,657	102,495	3	99	3	275
houn	310	15,055	1	110	.....	426,899
roll	837	60,611	2	61	1	.....
s	219	15,888	34	1,970	3	105
ampaign	1,706	150,245	15	1,313	9	300
istian	851	38,787	18	1,237	42	2,574
rk	401	32,969	5	241	180	1,155
y	123	6,375	2	460	112	1,158
nton	682	40,025	4	346	6	108
es	661	64,784	4	475	15	447
k	9,677	719,725	22	2,000	258	17,915
wford	322	17,496	4	609	88	959
nberland	183	9,865	16	1,550	6	308
Kalb	1,604	114,145	.....	.....	10	120
Witt	328	29,811	2	292	4	268
uglas	168	14,851	54	724	15	60
Page	3,349	262,968	.....	.....	10	360
gar	457	40,022	18	1,241	14	870
wards	114	16,610	4	470	.....	.....
ngham	427	25,697	4	256	16	3,669
vette	208	15,536	9	640	.....	.....
rd	393	26,249	2	90	10	410
nklin	36	2,587	4	428	.....	.....
ton	770	28,698	11	591	32	680
llatin	174	15,805	3	110	3	100
ene	181	7,638	16	453	35	1,523
ndy	492	29,592	1	150	10	911
milton	114	10,627	8	1,181	13	336
ncock	1,210	60,812	11	529	18	1,743
rdin	1,301	138,226	30	2,168	33	1,118
nderson	124	7,828	6	240	.....	.....
nry	1,126	84,061	1	144	20	1,644
quois	1,460	103,005	6	369	25	502
kson	430	39,123	26	2,660	103	4,026
per	354	16,854	9	868	120	4,437
ferson	292	15,312	23	2,697	37	1,515
sey	309	17,563	10	1,068	20	211
Daviess	1,650	112,501	6	.....	17	788
nson	171	14,285	11	440	5	55
ne	1,250	90,595	.....	.....	5	1,500
nkakee	1,081	73,116	1	90	4	1,125
ndall	692	37,895	1	40	.....	.....
ox	1,259	64,983	18	770	9	278
ke	1,724	55,887	.....	.....	13	751
Salle	2,804	211,470	1	90	12	586
wrence	292	25,238	9	966	65	2,058
e	.....	.....	.....	.....	.....	.....
ingston	1,621	96,001	4	297	4	35
gan	624	40,053	8	857	17	867
con	938	70,675	5	955	5	240
coupin	367	22,679	11	1,078	13	1,874
dison	4,719	385,585	24	2,023	233	9,382
rion	170	12,714	3	451	51	2,583
rshall	415	28,628	1	35	1	30
son	.....	.....	.....	.....	.....	.....
ssac	223	21,100	13	2,834	16	4,228
Donough	576	6,912	.....	185	2	326
Henry	1,796	114,637	.....	.....	36	675
Lean	1,734	127,528	11	751	27	2,794
nard	310	11,708	36	2,721	37	1,919
rcer	915	63,860	3	322	17	160
nroe	978	60,468	.....	.....	.....	.....
ntgomery	457	27,999	4	316	5	431
rgan	2,500	175,000	100	5,000	40	42,325
ultrie	225	14,867	5	242	1	145
le	1,553	138,737	8	1,448	2	70
oria	1,581	88,942	26	1,270	12	282

Agricultural Statistics, 1879—Continued.

Counties.	Irish Potatoes.		Sweet Potatoes.		Turnips and other Root Crops.	
	Acres.	Bushels produced.	Acres.	Bushels produced.	Acres.	Value of crop produced.
Perry	95	10,561	14	1,710	2	$130
Piatt	399	30,130	3	109	16	194
Pike	671	26,703	5	190	17	24,940
Pope	1,636	172,666	39	1,876	434	26,625
Pulaski	75	7,500	100	20,000	.....	5,000
Putnam	305	16,745	1	70	.....	.....
Randolph	680	66,991	36	3,649	61	2,114
Richland	231	17,235	4	345	15	578
Rock Island	2,106	188,100	1	250	56	1,530
Saline	86	7,895	3	515	11	530
Sangamon	1,061	54,556	43	2,875	36	29,137
Schuyler	248	11,865	6	325	11	1,134
Scott	273	9,427	4	110	2	160
Shelby	618	33,399	.....	286	43	383
Stark	317	25,449	1	30	9	50
St. Clair	3,022	267,369	55	5,436	22	1,010
Stephenson	1,715	141,834	4	217	27	79,065
Tazewell	938	58,098	38	.....	13	290
Union	523	48,243	219	22,890	13	400
Vermilion	915	78,144	7	798	36	5,446
Wabash	179	47,023	.....	.....	.....	.....
Warren	526	39,509	.....	133	1	100
Washington	564	40,979	29	2,960	28	578
Wayne	248	12,288	8	339	74	1,674
White	293	28,098	12	1,449	6	60
Whiteside	1,453	111,630	7	713	4	530
Will	2,690	149,367	1	120	148	11,850
Williamson	138	9,598	25	2,595	9	135
Winnebago	1,235	180,696	2	3	9	6,045
Woodford	721	44,413	1	205	15	340
Total	92,439	6,685,990	1,423	126,169	3,139	$722,444

Agricultural Statistics, 1879—Continued.

Counties.	Hemp (Fibre).		Cotton (Lint).		Flax (Fibre).	
	Acres.	Pounds produced.	Acres.	Pounds produced.	Acres.	Pounds produced.
ms						
ander						
d						
ne					2,142	216,900
wn						
au						
oun						
oll					64	
k						
mpaign		30			10,917	104,846
stian					1,337	6,568
k					32	129
					2,126	962
ton						
s						
t					11,763	513,240
vford					8	
berland						
alb					10,157	27,300
fitt						
glas	1	206				
age					5,884	
ar					65	1,000
ards						
gham					4	37
ette	5	1,700			16	4,000
l	110	13,000			28,883	985,530
nklin			1	310	28	5,280
on						
atin						
ne						
ndy					1,907	35
ilton					30	
cock						
lin			4	245		
derson						
ry						
uois					34,801	5,265,000
son			6	1,125		
er					1,170	
rson			1	112	433	
ey						
aviess					2,176	344,965
son						
					623	17,190
takee					2,847	145,290
lall					30	
k						
					6,356	
ille					400	
rence			12	2,750	6	
ngston					17,336	579
n						
on	60	30,000			1,161	235,175
upin						
son						
on		15		5	138	65
hall					10	
on						
ac			1	2,267		
onough						
enry		356			3,508	420
ean	1				4,849	555,725
ard	1	50				
er						
roe						
tgomery					371	288
gan						
ltrie					674	
					1,445	
ia						
y						

Agricultural Statistics, 1879—Continued.

Counties.	Hemp (Fibre).		Cotton (Lint).		Flax (Fibre.	
	Acres.	Pounds produced.	Acres.	Pounds produced.	Acres.	Pounds produced.
Piatt	2	100			5,427	1,886
Pike						
Pope			12	1,909		
Pulaski						
Putnam						
Randolph	7					
Richland					530	28
Rock Island						
Saline			2	170		
Sangamon	1	245				
Schuyler						
Scott						
Shelby			4	25	208	6,000
Stark						
St. Clair						
Stephenson					2,155	16,885
Tazewell						
Union						
Vermilion					9,380	75
Wabash						
Warren						16,277
Washington					46	719
Wayne			1	10	326	5,751
White						
Whiteside						
Will					3,110	12,776
Williamson					1	50
Winnebago					47	100
Woodford						
Total	188	45,702	44	8,928	174,927	8,492,993

Agricultural Statistics, 1879—Continued.

Counties.	Tobacco.		Broom Corn.		Sorgho.		Other Crops not named.	
	Acres.	Pounds produced.	Acres.	Pounds produced.	Acres.	Gallons syrup made.	Acres.	Value of crop prod'ced
ıms	3	1,205	11	8,675	525	27,773	275	$7,265
xander			13	9,100	122	11,441	54	352
ıd								
one			287	161,600	4	325		
own	8	2,315	6	2,260	354	16,968		565
reau			2	500	75	5,753	15	4,232
houn	3	2,200			43	2,803		
roll	25	26,341	9	6,000	36	1,473	7	330
is					16	1,880	48	1,800
ampaign	1	320	1,185	925,200	244	22,200	29	100
ristian	4	2,955	19	9,330	136	12,129	60	7,823
rk	20	10,105	27	8,870	418	62,488		200
y	4	1,550	4	920	495	22,046		30
nton	2	1,250	25	6,000	102	7,866		
es	8	6,036	5,188	3,202,030	180	20,086	1	550
ok	17	29,900			10	6,296	1,277	55,047
awford	44	42,102	8	4,406	368	25,348	79	1,959
mberland	8	2,160	102	61,700	342	22,374	6	18
Kalb			3	1,000	3	414	291	3,527
Witt	1	1,853	16	10,300	48	3,964	64	2,295
uglas	22	14,991	2,456	1,523,182	72	26,196	60	
Page			5	1,000	1	168	23	275
gar	16	7,502	164	78,450	1,065	14,877	187	526
wards	1	100	1	30	120	15,217		
ingham	8	4,948	7	3,762	425	34,372	66	100
yette		4,492	8	6,017	364	35,664		
rd			57	31,800	76	4,994	28	87
anklin	48	31,262	1	20	160	9,087	20	
lton	4	757	6	3,285	283	22,691	8	7,457
llatin	11	4,725			213	9,783	30	
eene	23	5,340	2	340	92	5,056	2	
undy		16			15	924	83	1,910
milton	192	125,022			296	22,513	40	85
ncock	1	585	50	26,480	310	24,947	37	900
rdin	21	4,966			174	9,690		
nderson					33	1,962	50	520
nry		105	4,601	3,057,845	65	11,506	530	2,175
quois		1,876	11	133,010	288	23,949	497	5,031
ckson	14	12,445	3	2,500	288	22,601	158	2,220
sper	33	21,057	3	965	528	35,326		22
ferson	11	6,907	10	3,270	344	15,554	55	2,115
rsey	1	1,475	12	6,000	30	2,100	53	100
Daviess	450	682,046	10	6,000	36	3,545		505
hnson	188	111,952	7	1,300	238	19,504	39	
ne					2	150	382	3,357
nkakee			6	1,000	91	6,603	1,257	3,424
ndall					2	77	1	60
ox	1	1,000	1,291	884,270	206	15,100	72	127
ke			7	5,110	1	63	23	483
Salle	1	50	25	14,000	167	15,166	338	155,650
wrence	8	7,090	18	6,890	295	21,191	44	20,100
e								
vingston	1	200	41	69,600	152	10,859	12,195	35
gan			24	88,000	36	2,633	25	1,535
acon	1	720	10	5,317	82	9,592		
acoupin	2	1,330	35	19,280	158	17,331	404	2,803
adison					173	14,685	1,582	
arion	11	10,866	23	8,216	307	26,808	6	6,964
arshall			20	8,000	47	3,788	3	500
ason								
assac	107	92,840		235	182	16,711	18	543
Donough		731			162	22,338	5	83
Henry	3	927	28	2,373	161	5,679	387	12,795
Lean	1	250	21	11,900	157	14,270	187	4,052
nard	3	100	4	3,900	55	1,973	107	30
ercer			190	122,000	193	18,094	57	680
onroe					79	4,323	57	695
ontgomery	5	2,087	10	8,000	226	20,904	446	1,175
organ	10	3,000	30	15,000	75	4,000	150	10,472
oultrie	1	300	37	21,270	151	11,680	96	
gle			41	18,400	20	3,326	2	50
oria	1	85	49	17,600	84	6,950	123	8,730

Agricultural Statistics, 1879—Continued.

Counties.	Tobacco.		Broom Corn.		Sorgho.		Other Crops not named.	
	Acres.	Pounds produced.	Acres.	Pounds produced.	Acres.	Gallons syrup made.	Acres.	Value of crop prod'ced
Perry	1	800	5	.....	68	5,676	.....	.....
Piatt	1	5,995	843	320,060	82	10,668	11	[illegible]
Pike	20	11,500	10	5,000	225	14,328	761	[illegible]
Pope	59	33,000	.....	.....	674	41,955	2	[illegible]
Pulaski	50	45,000	.....	.....	150	15,000	.....	.....
Putnam	.....	.....	.....	.....	48	3,948	.....	.....
Randolph	2	520	6	2,605	293	22,410	11	.....
Richland	7	3,180	6	2,300	294	20,918	.....	.....
Rock Island	.....	.....	14	8,000	72	6,148	63	.....
Saline	604	440,807	6	700	357	20,840	.....	.....
Sangamon	2	715	8	5,059	60	3,179	185	7,319
Schuyler	.....	630	65	24,300	258	24,544	65	762
Scott	1	75	.....	.....	2	1,315	.....	.....
Shelby	.....	3,001	90	40,500	256	22,917	31	[illegible]
Stark	.....	.....	41	22,500	29	3,254	1,687	.....
St. Clair	1	25	1	400	98	8,709	396	147,515
Stephenson	148	296,911	40	51,395	21	2,363	39	[illegible]
Tazewell	.....	1,780	8	1,600	75	7,067	18	[illegible]
Union	1	1,500	1	225	150	11,260	548	7,[illegible]
Vermilion	4	2,353	4	2,496	191	19,734	300	1,[illegible]
Wabash	.....	.....	23	6,000	102	7,777	.....	.....
Warren	.....	.....	5	1,540	133	.....	2,212	[illegible]
Washington	5	1,620	5	2,050	252	15,117	13	[illegible]
Wayne	23	16,054	4	2,220	619	38,020	40	611
White	38	23,097	.....	.....	420	22,310	380	[illegible]
Whiteside	.....	.....	1	800	26	2,172	1	[illegible]
Will	.....	.....	3	1,000	18	.....	506	[illegible]
Williamson	764	558,259	47	20,000	507	29,817	2	[illegible]
Winnebago	.....	.....	191	101,380	20	2,146	157	5,[illegible]
Woodford	.....	70	1	5,600	62	5,640	72	[illegible]
Total	3,079	2,741,329	17,664	11,161,238	17,883	1,309,400	29,639	[illegible]

Agricultural Statistics, 1879—Continued.

Counties.	Apple Orchards.		Peach Orchards.		Pear Orchards.		Vineyards.		Fruits and Berries, not included in orchards.	
	Acres.	Bushels produced.	Acr's	Bushels produced.	Acr's	Bushels produced.	Acr's	Gallons wine made.	Acr's	Value of crop produced.
ms	6,406	83,820	108	5	7	35	88	2,798	92	$4,765
xander	510	5,369	41	150	1				6	325
id										
ne	1,337	14,456					1	50	1	50
wn	1,773	26,014	40	108	3	74	15	1,176	11	317
eau	6,732	65,245	40	1,085			24	2,853	3	241
noun	2,469	58,403	4				20	1,954		
roll	1,473	12,480					4	40	1	115
s	1,143	13,262	29	702						
mpaign	4,906	126,972	55	217			27	1,645	42	3,460
istian	4,530	116,688	71	282	27	19	44	3,330	12	498
rk	2,129	78,952	57	810			3	514	2	115
y	1,568	57,186	17	8			8	600	16	576
nton	2,500	95,327	32	10			68	7,345	64	9,065
es							12	84	30	650
k	4,235	46,606	24	890	17	290	19	2,561	90	4,564
wford	1,772	65,923	4						1	51
nberland	1,403	42,919	10	65			10	528	48	3,510
kalb	4,014	30,869			1				3	10
Witt	1,977	43,542	35	25			36	605	3	380
nglas	1,877	88,523	40	1,235	4	75	10	700	21	1,820
Page	2,620	34,676	1	15	4	75	20	226	103	2,050
gar	3,386	138,642	57	596	6	51	14	403	18	118
wards	1,377	21,500	15				1	45		
ngham	1,663	54,015	50	217			16	865	5	360
vette	2,339	94,947							10	1,141
d	2,025	12,979	2	2	1		11		9	302
nklin	1,442	15,889	52	110	4		2		1	80
ton	4,791	54,236	63	20		3	45	275	39	1,312
latin	976	3,770	126				2			
ene	1,901	58,667	208	760	1	5	35	750	13	210
ndy	2,166	51,475	21	360			1		2	1,304
milton	2,083	31,994	82		5	75				
ncock	6,336	110,187	58	26	4	15	450	66,641	20	811
rdin	745	67	116		4		3	95		
nderson	1,483	18,548	2				4	1,150	13	148
ary	4,071	52,558	7	8	7		7	478	10	1,056
quois	4,964	54,438	31	1	5	10	20	141	114	5,224
kson	3,169	72,971	635	730	33	160	55	883	186	9,207
per	1,273	40,763	27				3	678	1	85
ferson	3,052	70,670	74	100			6	300	76	2,194
sey	2,149	80,842	22	255	4	140	53	9,302	11	279
Daviess	1,879	29,361					118	5,863	25	273
nson	1,521	13,014	293	270					17	1,199
ne	2,709	24,880							6	450
nkakee	1,861	26,967	4				28	258	28	270
ndall	3,880	31,011	5	50			6	230	4	150
ox	5,325	67,925	2				17	30	64	3,467
te	2,902	26,343	2	26	1	7	4	503	9	238
Salle	6,433	85,433	1	16			19	3,502	49	3,863
wrence	2,305	56,628	67	170	1	10	10	70	7	140
ingston	4,574	76,474	8	50		12	28	2,349	19	1,635
gan	2,081	37,647	24	90	2	50	14	196	13	1,080
con	2,936	77,319	40	55	8	14	11	1,217	8	650
coupin	5,365	292,915	57	648	27	329	25	2,204	27	294
dison	6,582	254,298	112	2,393	38	655	160	25,700		
rion	3,441	148,191	132	20	1		9	8	50	5,960
rshall	2,549	55,275	5		6		9	300	17	1,000
son										
ssac	1,371	2,342	84	4	6		1			
Donough	2,521	27,813					54	2,819	49	460
Henry	3,338	25,588	1	20	1	4	34	1,306	65	2,553
Lean	7,322	123,368	24	394	10	35	60	3,542	58	2,763
nard	1,555	38,251	7	30	3	50	26	2,130	30	340
rcer	3,773	44,144	8	27	1		16	69	19	695
nroe	1,375	35,108	5	270			110	17,867		

Agricultural Statistics, 1879—Continued.

Counties.	Apple Orchards.		Peach Orchards.		Pear Orchards.		Vineyards.		Fruits and Berries, not included in orchards.	
	Acres	Bushels produced.	Acr's	Bushels produced.	Acr's	Bushels produced.	Acr's	Gallons wine made.	Acr's	Value of crop produced.
Montgomery..	4,604	182,230	113	248	8	126	15	1,221	5	[illegible]
Morgan.....	3,668	183,400	81	1,000	3	92	12	2,800	50	1,000
Moultrie.....	2,140	53,261	61	75	1	7	4	90	1	13,256
Ogle.....	2,972	52,803	.....	.....	.....	.....	6	354	2	140
Peoria.....	3,136	55,079	7	61	2	12	83	5,543	33	2,644
Perry.....	658	26,789	27	100	22	155	5	1,000	.....	30
Piatt.....	2,126	56,766	42	487	4	44	33	812	20	737
Pike.....	4,349	78,228	32	160	4	20	84	5,792	52	75
Pope.....	1,708	9,326	569	2,590	29	80	11	565	.....	300
Pulaski.....	1,445	100,000	200	.....	200	.....	200	40,000	200	30,000
Putnam.....	1,105	12,560	1	.....	.....	.....	1	430	1	.....
Randolph.....	2,694	89,496	143	779	1	84	38	4,022	5	155
Richland.....	2,478	61,858	14	.....	1	3	.....	.....	15	100
Rock Island...	3,056	57,949	2	60	3	58	60	1,618	26	3,333
Saline.....	981	5,650	54	.....	1	.....	4	300	.....	.....
Sangamon.....	4,124	139,023	96	182	4	15	36	2,300	42	688
Schuyler.....	2,475	19,161	30	.....	.....	.....	2	80	6	90
Scott.....	760	21,706	14	780	.....	.....	32	870	.....	.....
Shelby.....	3,404	116,807	148	27	.....	15	21	5,105	5	278
Stark.....	1,397	24,139	12	310	.....	.....	4	120	11	334
St. Clair.....	5,351	139,036	12	360	4	180	170	47,790	1	320
Stephenson...	2,934	17,479	.....	7	.....	.....	8	405	24	650
Tazewell.....	3,463	67,093	28	.....	.....	.....	41	3,230	70	2,922
Union.....	3,004	37,482	723	2,140	96	2,756	20	20	592	20,811
Vermilion.....	3,806	120,697	21	100	7	60	5	611	55	12,632
Wabash.....	1,590	29,940	.....	.....	.....	.....	.....	.....	50	1,000
Warren.....	2,714	27,370	12	.....	1	.....	13	108	1	21
Washington...	2,244	66,761	19	476	2	50	8	480	44	654
Wayne.....	3,057	45,334	64	25	.....	.....	1	.....	1	14
White.....	2,332	25,553	151	50	1	36	.....	.....	.....	.....
Whiteside.....	3,734	55,527	21	537	3	98	2	4,555	14	1,248
Will.....	5,366	60,565	6	145	.....	.....	13	9,300	4	45
Williamson....	2,015	50,573	68	1,675	1	50	.....	.....	2	35
Winnebago....	2,667	34,807	.....	.....	.....	.....	1	.....	106	7,297
Woodford.....	3,010	87,539	4	50	.....	.....	70	7,624	5	355
Total.....	281,030	5,958,690	5,912	25,749	641	6,134	2,899	326,323	3,111	185,488

Agricultural Statistics, 1879—Continued.

Counties.	Timothy Seed.	Clover Seed.	Hungarian and Millet Seed.	Cotton Seed.	Flax Seed.	Grapes.
	Bushels produced.	Bushels produced.	Bushels produced.	Bushels produced.	Bushels produced.	Pounds produced.
ms	555	782				91,490
tander						
d						
ne	1,615	6,795	64		12,842	1,536
wn	82	852				40,170
eau	1,612	901	167		397	11,533
ioun						38,880
roll	989	5,537	160		1,002	6,581
s						12,000
mpaign	2,789	122	626		101,405	86,221
istian	836	40	8		11,835	47,343
k	613	536	4		100	12,172
r	586	1,974	120	20	14,126	2,735
ıton	35					2,500
es	911	506	1,618			19,165
k	485	16	1,215		120,832	67,500
wford	140	88				1,533
nberland	939				213	17,140
ıalb	16,806	7,834	436		70,780	1,822
Vitt	624	213	48		120	68,910
ıglas	2,744	246	837		1,582	23,645
Page	1,135	704	235		54,902	38,170
ıar	4,318	312			947	20,783
vards	5,259	58	5			4,000
ngham	552		362		1,299	2,721
ette	248	219	382		1,482	12,889
d	6,941	178	1,138		237,439	8,485
nklin		18			1,480	40
ton	1,442	5,379				107,197
latin	4	149	5			
ene	38	365				15,600
ndy	7,812	84	1,371		9,853	6,530
nilton					180	
ncock	565	83				364,842
rdin		6	1			
nderson	154	6	25			20,030
ıry	1,103	1,114	290			40,802
quois	17,246	86	6,663		302,845	118,809
kson	25	478	38			21,935
per	4,605	1	18		9,167	2,705
erson	327			1	1,548	1,750
sey	107	177				51,300
Daviess	1,324	5,715	652		15,898	2,435
nson		647				600
ne	5,563	2,243	777	200	9,156	2,275
kakee	6,240	1,169	2,838		78,122	30,991
ndall	9,684	2,115	294		336	15,690
ox	2,130	1,272	83			68,495
te	1,734	1,734	183		81,731	18,713
Salle	14,054	1,169	1,177		6,950	17,851
wrence	273	420	8			4,840
ingston	13,178	709	5,680		185,315	73,189
gan	194	53				21,503
con	1,702	458	150		10,567	58,898
coupin	477	527	167			32,030
dison			52		13,625	119,357
rion	9,424	1	60	24	8,799	1,830
rshall	713	646	150		312	18,750
son						
ssac						154
Donough	1,114	1,582				33,105
Henry	5,652	11,886	762		22,963	82,935
Lean	3,336	1,761	402		36,273	187,125
nard	10					51,086
rcer	1,638	317				35,925
nroe		240	33			770
ntgomery	163	10	195		1,038	14,065
rgan	1,276	92				16,128
ultrie	411	225	349		5,003	20,440
e	9,543	20,029	700		9,627	5,808
oria	687	4,282	25			144,041

Agricultural Statistics, 1879—Continued.

Counties.	Timothy Seed.	Clover Seed.	Hungarian and Millet Seed.	Cotton Seed.	Flax Seed.	Grapes.
	Bushels produced.	Bushels produced.	Bushels produced.	Bushels produced.	Bushels produced.	Pounds produced.
Perry						150
Piatt	558	253	581		57,442	78,940
Pike	31	1,206				85,835
Pope						1,500
Pulaski		80				60,000
Putnam	223		268			
Randolph	8	367	60		50	25,866
Richland	13,613	109			3,361	5,368
Rock Island	136	147				16,440
Saline	10	16				1,600
Sangamon	377	80			47	54,042
Schuyler	727	2,872			5	3,731
Scott						85,050
Shelby	561	112	532		1,442	22,318
Stark	840	223	5		6	1,569
St. Clair		106				2,650
Stephenson	1,269	12,607	209		14,781	5,348
Tazewell	173	3,929	151			55,740
Union						
Vermilion	2,277	207	482		72,162	41,584
Wabash	695	1,087				325
Warren	623	157				22,995
Washington	50		15	1	425	2,825
Wayne	5,232	93			2,039	511
White	42	1,464				700
Whiteside	1,239	3,343	196			19,600
Will	4,513	4,871	10,545		26,887	2,907
Williamson		496	65			100
Winnebago	661	5,574	66		305	13,135
Woodford	2,709	3,681	28			103,680
Total	213,329	138,191	43,776	246	1,621,043	3,184,952

Agricultural Statistics, 1879—Continued.

Counties.	Uncultivated Acreage.					
	Pastures	Woodland	Unculti vated land	Area city and town real estate	Acres not included elsewhere	Total No. of acres reported for county
ıms	44,366	78,949	37,874	1,664		379,360
xander	112					19,994
ıd						
ıne	41,423	19,819	11,452	640		158,982
wn	24,422	37,739	27,786	890		162,774
eau	107,813	17,491	29,668	5,495		450,347
houn	2,909	56,735	5,201			103,039
roll	56,305	12,947	19,373	11,310		244,242
s	15,853	30,311	10,567			138,911
ımpaign	85,040	11,968	44,447	4,791	149,012	631,883
istian	53,226	24,073	22,601	15,601		373,177
rk	22,284	67,274	45,869	292		247,811
y	13,587	33,939	12,464	35		151,661
ıton	26,679	41,967	28,511	518		252,751
es	37,827	21,508	11,260	1,295		207,736
k	85,153	14,757	11,342	6,447		363,396
ıwford	26,142	57,115	4,301			184,565
nberland	22,277	46,018	65,022	555		212,401
Kalb	111,104	14,146	10,514	3,717		399,350
Witt	33,923	19,448	15,038	1,202		189,870
uglas	50,557	11,139	9,925	2,880	70,000	190,959
Page	47,025	12,208	19,731	9,669		207,040
gar	106,497	71,532	24,507	13,734		414,193
wards	6,720	31,792	47,577	940		141,525
ıngham	19,178	29,578	25,160	4,366		190,125
vette	20,730	51,466	34,777	4,340		240,328
rd	28,545	2,947	36,365		40,655	304,759
ınklin	2,039	8,857	2,354	69		70,355
lton	1,225	81,330	113,457	2,501		407,100
llatin	2,771	24,500	90,783			170,472
ene	46,572	41,300	19,821			230,896
ındy	54,143	4,028	11,741	305		208,531
milton	2,960	166,383	3,877	890		238,753
ncock	53,296	34,595	16,713	1,957		344,515
rdin	2,422	18,165	24,536			64,914
nderson	48,053	34,206	47,337	763		238,618
nry	97,011	10,472	12,110	229		412,784
quois	93,089	12,573	39,808		170,026	705,315
ckson	4,850	14,300	56,163	1,638		169,279
sper	10,054	48,217	16,395			148,896
ferson	17,670	85,684	37,723	7,996		255,153
sey	22,879	31,084	29,951	92		182,100
Daviess	58,138	56,703	52,062	782	69,235	377,451
nnson	4,136	82,480	8,361	191		142,229
ne	79,083	22,782	3,878	1,149		250,315
nkakee	58,085	5,337	17,744	564		299,914
ndall	51,121	11,681	1,998	3,021		198,907
ox	139,263	23,468	27,306	2,784		444,541
ke	51,862	26,234	8,612	1,481		192,659
Salle	104,331	43,443	14,182	6,468		579,210
wrence	12,420	40,835	15,350	1,285		155,777
e						
vingston	74,464	9,964	24,425	24,780		561,278
gan	49,865	17,785	12,353	3,559		288,553
con	46,835	8,988	9,540	72		244,128
coupin	29,126	62,636	26,652	2,076		376,922
ıdison	29,596	37,405	29,920			346,557
ırion	23,682	53,626	18,333	7,036		211,044
ırshall	33,694	13,305	10,962	4,447		187,676
ason						
ssac	2,404	18,810	16,059			78,515
Donough	19,062	3,912	2,826	2,088		208,306
Henry	118,965	38,374	15,825	13,541	13,191	373,099
Lean	142,033	28,066	56,736	8,251	82,431	740,200
nard	38,009	22,781	9,649	128		164,718
ercer	75,984	27,377	27,486	2,743	41,982	347,218
onroe	5,508	49,230	5,270			143,805
ontgomery	60,014	48,676	41,219	5,008	37,606	442,424
organ	89,439	61,992		4,187		357,539
oultrie	34,400	9,481	8,247	48		146,979

Ayricultural Statistics, 1879—Continued.

Counties.	Uncultivated Acreage.					
	Pastures	Woodland	Uncultivated land	Area city and town real estate	Acres not included elsewhere	Total No. of acres reported for county
Ogle	70,525	27,249	10,172	20,687		375,79[illegible]
Peoria	54,91[illegible]	28,855	9,969			23[illegible]
Perry	4,868	36,602	118,178	900		214,844
Piatt	42,121	4,720	18,788	199		214,[illegible]
Pike	85,800	58,274	172,723	2,630		511,[illegible]
Pope	8,873	145,348				2[illegible]
Pulaski	700	80,994		700		112,[illegible]
Putnam	16,504	22,075	19,181	435		106,[illegible]
Randolph	9,177	65,326	9,238			215,[illegible]
Richland	13,253	48,972	28,218	745		175,[illegible]
Rock Island	47,164	25,259	69,354	4,546		2[illegible]
Saline	1,649	157,664	31,982			2[illegible]
Sangamon	129,092	26,267	10,387	1,046		[illegible]
Schuyler	22,467	67,443	12,436	20,219		21[illegible]
Scott	17,383	10,503	15,485	1,096		104,[illegible]
Shelby	50,197	30,148	17,751			27[illegible]
Stark	32,644	7,301	2,666	280		14[illegible]
St. Clair	13,642	43,670	6,181	9		2[illegible]
Stephenson	49,070	23,360	9,868	733		2[illegible]
Tazewell	44,424	42,454	17,734	663		311,[illegible]
Union	4,796	49,999	4,040	123		1[illegible]
Vermilion	107,781	24,576	25,874	503		414,[illegible]
Wabash	4,733	36,031	6,103			9[illegible]
Warren	79,680	18,625	13,410	1,988		3[illegible]
Washington	13,578	33,005	6,635	2		1[illegible]
Wayne	26,838	88,564	31,355	83		2[illegible]
White	8,916	152,269	31,973	1,634		3[illegible]
Whiteside	77,609	10,028	23,509		108,172	4[illegible]
Will	110,577	16,069	13,058			4[illegible]
Williamson	3,581	26,804	4,744			[illegible]
Winnebago	63,941	19,278	11,496	6,840		2[illegible]
Woodford	46,014	32,884	28,624	3,516		3[illegible]
Total	4,242,713	3,708,567	2,380,228	272,127	782,310	26,454,[illegible]

Agricultural Statistics, 1879—Continued.

Counties.	Fat Sheep Sold.		Sheep Killed by Dogs.		Wool.
	Number.	Gross weight, pounds.	Number.	Value.	Number pounds shorn.
ns	3,893	799,128	468	$1,430	60,519
ander	120	10,161	65	110	1,761
l					
ie	1,401	125,866	283	1,128	82,015
rn	1,227	110,552	170	819	29,964
au	1,675	169,850	130	552	42,268
oun	58	5,340	72	139	3,354
oll	507	45,760	18	56	18,302
	234	25,465	95	398	7,589
npaign	2,189	356,679	174	457	43,787
stian	1,508	160,156	160	546	40,575
t	1,728	135,506	392	902	33,528
	2,614	106,340	403	1,275	27,706
on	1,615	146,048	332	623	33,250
s	5,236	254,086	212	544	30,816
	549	46,923	401	346	15,081
ford	3,298	224,264	186	238	39,740
berland	820	57,856	208	408	15,669
lb	1,375	138,374	343	1,157	56,393
itt	3,184	294,113	151	464	43,156
las	1,693	182,794	90	270	21,870
ge	7,310	707,185	218	2,695	65,183
r	4,945	408,182	595	131	58,418
rds	1,033	81,625	236	618	42,246
ham	691	52,718	344	723	16,055
te	2,238	222,382	612	1,433	40,597
	169	20,650	30	113	4,114
clin	682	58,785	273	574	6,932
n	4,406	363,430	688	1,882	97,936
tin	481	29,995	342	490	7,051
ie	5,036	553,556	482	1,425	75,358
ly	283	18,932	39	80	14,727
lton	1,312	116,645	371	493	17,432
ock	821	67,193	207	601	17,640
n	497	35,238	124	223	3,989
erson	257	14,640	38	107	6,849
y	756	89,319	126	348	29,669
ois	818	67,937	207	487	27,723
on	546	43,980	302	503	9,513
r	1,410	68,552	611	2,704	20,796
son	1,761	158,490	677	1,523	24,461
y	895	69,792	113	1,376	30,470
ziess	1,452	149,034	277	836	43,034
on	305	27,170	227	514	7,547
	2,514	1,803,134	185	542	64,510
akee	1,840	122,276	84	252	11,273
all	1,879	205,514	158	709	49,386
	4,288	487,436	382	1,271	68,373
	7,142	517,113	603	1,834	317,371
le	2,927	324,004	1,259	1,260	77,886
ence	1,251	124,492	365	1,096	28,425
rston	856	70,299	68	335	19,809
	1,140	108,385	83	361	34,690
	1,293	128,744	52	195	36,618
ipin	5,078	438,650	964	3,374	123,430
on	2,493	220,004	376	1,163	41,863
n	2,708	210,979	684	1,357	38,676
all	814	78,280	196	564	31,442
c	291	25,292	118	225	3,212
nough	2,620	7,336	144	197	22,668
ary	9,943	770,669	441	1,055	219,231
an	4,651	447,538	436	1,476	106,308
d	1,551	119,018	140	279	52,596
r	767	84,129	124	474	29,497
e	169	1,160	53	136	4,510
omery	2,233	229,805	565	1,340	56,534
n	2,534	228,060	325	975	57,246
rie	642	71,530	103	213	13,562
	1,707	118,493	186	683	60,888
	1,183	107,881	357	1,053	34,278
	282	23,390	156	381	6,598

Agricultural Statistics, 1879—Continued.

Counties.	Fat Sheep Sold.		Sheep Killed by Dogs.		Wool.
	Number.	Gross weight, pounds.	Number.	Value.	Number pounds shorn.
Piatt	3,056	27,590	88	$295	9,73[illegible]
Pike	2,429	168,069	569	1,428	56,[illegible]
Pope	996	84,898	384	741	20,7[illegible]
Pulaski	700	70,000	20	50	5,[illegible]
Putnam	500	49,670	32	109	14,[illegible]
Randolph	2,242	219,111	325	939	37,[illegible]
Richland	928	77,024	324	707	25,[illegible]
Rock Island	267	27,025	76	266	19,[illegible]
Saline	1,463	.....	218	.....	16,[illegible]
Sangamon	6,294	490,164	953	2,362	100,[illegible]
Schuyler	1,366	126,705	421	1,147	23,[illegible]
Scott	1,986	233,045	96	406	48,[illegible]
Shelby	2,256	.....	412	.....	49,[illegible]
Stark	2,742	278,080	91	495	51,[illegible]
St. Clair	1,679	124,015	140	382	21,[illegible]
Stephenson	2,490	240,265	265	926	52,[illegible]
Tazewell	1,953	209,014	241	.....	42,[illegible]
Union	815	49,543	161	252	7,[illegible]
Vermilion	3,965	330,120	641	1,854	118,[illegible]
Wabash	768	66,526	73	163	15,[illegible]
Warren	2,865	235,900	280	735	37,[illegible]
Washington	790	62,939	381	860	13,[illegible]
Wayne	2,489	212,444	717	1,369	35,[illegible]
White	1,127	105,545	315	672	20,[illegible]
Whiteside	760	80,286	135	419	32,[illegible]
Will	1,489	139,810	229	645	32,[illegible]
Williamson	2,509	227,678	487	915	15,[illegible]
Winnebago	1,755	152,356	433	1,173	78,[illegible]
Woodford	904	89,247	118	406	17,[illegible]
Total	191,398	18,071,371	28,664	74,257	3,944,[illegible]

Agricultural Statistics, 1879—Continued.

Counties.	Dairy.					Fat Cattle.	
	Cows, No. kept.	Butter, No. lbs. sold.	Cheese, No. lbs. sold.	Cream, No. gall'ns sold.	Milk, No. gals. sold.	No. sold.	Gross weight.
ıs	6,853	179,797	4,895	3,150	22,876	4,358	4,124,589
ınder	449	2,620	.....	21	36	770	353,970
e	9,160	368,989	258,900	.....	936,936	3,170	2,349,341
n	3,042	53,217	370	80	5,6 0	2,362	2,454,530
ıu	10,196	269,684	47,063	.....	23,750	11,697	11,710,455
›un	1,327	6,665	.....	.....	.....	632	393,475
›ll	8,024	403,533	103,266	19,959	260,314	5,311	5,985,603
	1,497	20,097	.....	.....	.....	4,280	5,207,507
ıpaign	6,984	208,217	28,580	323	13,894	7,806	8,712,841
tian	5,275	134,768	405	.....	12,592	7,770	8,299,928
	3,707	76,968	.....	.....	.....	1,815	1,597,626
	2,378	76,993	50	.....	110	1,296	889,607
on	3,536	96,571	800	42	63,180	1,631	1,183,430
	4,243	106,392	200	.....	7,330	6,426	4,315,944
	21,715	649,822	127,750	1,138	5,007,253	2,716	2,230,440
ford	2,648	51,438	200	13	100	1,829	1,437,594
erland	2,567	40,833	.....	150	.....	998	908,091
ılb	19,971	1,651,234	413,622	3,114	427,279	7,874	7,346,987
itt	3,597	94,444	300	180	16,691	4,492	5,078,556
;las	2,355	46,790	100	10	125	5,310	6,539,210
ıge	13,625	553,288	712,008	36	5,344,836	3,392	3,167,952
ır	4,252	125,260	50	181	13,545	31,449	12,240,525
ards	2,099	20,555	.....	.....	200	534	424,737
gham	3,862	64,097	520	160	5,250	1,568	917,837
tte	4,296	98,054	7,050	.....	29,549	1,489	909,375
	3,531	124,871	11,375	.....	5,735	2,021	1,887,250
klin	938	4,674	.....	.....	.....	568	355,693
›n	9,267	227,340	1,800	3,570	11,120	9,871	9,444,749
ıtin	1,384	12,440	.....	.....	100	864	554,015
ne	3,581	88,849	520	1,050	390	7,963	9,322,755
ıdy	5,591	218,063	51,350	35	32,412	3,794	3,176,385
ilton	2,423	8,290	.....	.....	.....	1,086	825,869
›ock	6,361	222,181	5,792	565	1,766	8,635	9,903,368
lin	639	5,720	.....	50	601	914	260,600
lerson	3,687	37,370	500	.....	225	5,512	6,576,715
ry	11,948	696,614	96,300	8,103	20,145	9,306	10,948,028
uois	10,930	434,173	11,550	.....	187,103	6,998	7,958,500
son	2,820	61,119	.....	5,365	.....	1,693	852,287
er	2,508	30,840	.....	.....	.....	3,576	1,796,678
rson	2,716	43,837	290	10	1,875	1,592	1,117,584
ey	2,422	51,601	.....	925	20,240	1,232	1,126,405
aviess	10,065	489,912	11,250	748	18,880	5,518	5,569,346
ıson	1,645	3,937	.....	.....	.....	1,051	679,842
	25,091	3,476,629	1,737,140	8,495	72,811,519	6,990	7,466,095
kakee	8,395	569,944	17,500	2,700	292,051	4,284	5,001,568
lall	5,374	485,861	62,280	.....	531,027	4,206	4,472,483
x	9,455	286,581	271,783	619	552,633	9,983	11,281,544
	12,671	715,617	271,351	38	611,247	1,615	1,736,131
ille	15,203	609,655	157,255	1,278	409,144	12,909	14,994,954
rence	2,740	58,250	56	.....	4	1,785	1,210,524
ngston	10,650	405,702	6,510	30	22,220	5,958	6,046,409
ın	3,717	116,373	4,500	285	13,300	4,864	7,643,741
on	3,594	123,468	.....	.....	325	5,272	5,731,479
oupin	8,055	147,092	5,700	1,460	336,846	7,035	7,661,200
ison	6,483	184,347	26,730	75	336,612	2,302	1,930,967
ion	3,230	64,252	8,500	.....	28,260	1,788	1,283,760
shall	3,744	130,187	32,500	200	11,017	3,96	4,024,293
on							
sac	1,538	24,316	.....	.....	70	593	224,080
onough	5,076	175,014	1,420	51	46,712	5,418	58,643
lenry	21,862	1,198,779	1,427,156	8,120	3,433,741	5,643	5,181,903
ean	10,996	321,984	2,890	1,412	80,970	13,681	17,927,040
ard	2,026	44,168	50	33	9,032	5,672	7,861,618
eer	5,991	134,729	800	.....	59,316	6,945	8,257,363
iroe	1,967	34,950	1,069	.....	100	406	236,797
ıtgomery	6,135	166,221	500	100	98,420	3,729	3,372,190
gan	2,786	97,123	.....	22,396	222,104	8,987	11,683,100
ıltrie	2,471	47,683	3,840	.....	.....	2,203	2,439,233
	14,924	875,083	50,120	13,916	340,183	8,946	9,396,740
ria	8,704	319,293	39,794	58,713	165,284	5,246	5,026,858

Agricultural Statistics, 1879—Continued.

Counties.	Dairy.					Fat Cattle.	
	Cows, No. kept.	Butter, No. lbs. sold.	Cheese, No. lbs. sold.	Cream, No. gall'ns sold.	Milk, No. gals. sold.	No. sold.	Gross weight.
Perry	1,016	27,252	950	.....	300	439	296,215
Piatt	2,564	49,446	500	1,050	9,152	3,526	4,407,162
Pike	3,897	73,974	100	210	19,303	4,362	4,186,980
Pope	1,537	18,397	71	.....	.....	1,017	540,521
Pulaski	3,000	60,000	.....	.....	.....	2,000	140,000
Putnam	1,540	39,874	.....	.....	.....	2,464	2,885,790
Randolph	3,542	68,941	5,515	.....	1,542	2,120	1,197,197
Richland	3,328	52,487	6,279	210	5,713	1,780	1,080,460
Rock Island	6,590	302,940	650	1,460	141,762	4,980	5,347,777
Saline	1,719	13,449	.....	.....	138	1,215	.....
Sangamon	7,138	219,950	256,807	48,030	85,291	20,029	23,491,489
Schuyler	4,173	69,387	150	.....	19	3,031	3,246,862
Scott	1,714	52,120	.....	.....	1,892	3,399	4,422,670
Shelby	5,048	94,091	20	.....	875	4,254	.....
Stark	3,396	103,273	10,500	.....	60,230	4,190	4,037,215
St. Clair	4,943	212,612	9,475	100	51,185	1,336	1,159,030
Stephenson	2,972	804,971	3,711	4,173	69,585	3,880	4,209,978
Tazewell	6,417	192,183	1,535	270	106,124	4,356	4,771,996
Union	1,861	28,679	.....	200	6,500	1,096	581,169
Vermilion	5,283	154,800	19,520	.....	34,290	11,612	14,242,273
Wabash	878	13,377	.....	.....	.....	1,013	623,105
Warren	5,664	153,614	47,154	287	12,700	12,873	14,206,038
Washington	3,846	54,082	230	75	4,150	898	555,581
Wayne	3,439	28,467	700	.....	10	2,227	1,495,100
White	2,467	20,659	.....	.....	75	1,852	1,112,222
Whiteside	13,099	905,501	68,577	5,242	75,064	6,561	6,972,835
Will	19,547	1,266,540	123,187	91	2,269,747	7,512	9,458,670
Williamson	1,480	15,546	.....	.....	.....	1,032	555,981
Winnebago	11,183	795,020	40,081	200	796,887	4,603	5,551,313
Woodford	5,412	161,127	1,200	.....	6,055	4,145	4,420,889
Total	571,628	25,028,225	6,618,212	230,497	96,659,854	457,331	448,463,450

Agricultural Statistics, 1879—Continued.

Counties.	Fat Hogs Sold.		Hogs and Pigs died of Cholera.		Horses.	
	Number	Gross weight.	Number	Gross weight.	Number colts foaled.	Number died. Any age.
as	56,094	12,246,531	16,475	1,053,157	.....	.....
ander	549	182,177	2,012	115,302	.....	.....
l	.....	.....	.....	.....	.....	.....
e	20,288	4,643,553	356	30,045	390	140
n	15,865	4,226,032	4,535	283,561	415	194
au	88,081	25,868,608	14,717	1,378,048	1,763	629
oun	3,660	917,364	1,293	13,980	141	114
oll	32,954	1,026,828	7,321	665,862	.....	.....
...	9,618	2,469,389	3,938	285,600	291	169
npaign	49,299	11,370,811	13,154	845,971	1,289	971
stian	38,941	8,460,227	10,950	709,536	1,013	473
s	11,119	2,443,724	4,878	288,770	373	248
...	5,173	1,261,105	1,174	83,425	.....	.....
on	11,318	2,545,093	1,573	111,765	324	232
s	27,332	4,646,529	8,648	575,481	.....	.....
t	17,417	2,910,070	512	46,400	.....	.....
rford	11,108	2,443,760	2,257	135,420	336	212
berland	5,200	1,173,807	1,791	125,739	191	278
alb	53,531	12,563,755	9,956	927,905	1,200	412
itt	27,578	6,382,642	10,102	739,853	62	381
glas	20,120	4,368,279	9,559	908,984	247	186
age	18,919	4,488,143	1,053	11,984	550	223
ar	32,972	9,950,109	11,261	915,455	459	276
ards	9,262	2,249,727	2,277	162,552	186	132
gham	5,842	1,301,675	2,453	159,057	329	359
ette	11,592	2,475,178	3,654	200,979	479	342
l	22,513	5,521,944	3,465	226,436	.....	.....
nklin	2,799	508,130	1,514	89,525	168	125
on	66,993	15,318,213	19,326	1,336,452	1,442	547
atin	4,118	831,045	2,902	150,265	.....	.....
ene	28,656	6,887,468	8,968	612,206	.....	.....
ndy	23,212	6,380,036	2,431	99,940	509	293
nilton	2,881	683,108	2,285	161,335	.....	.....
cock	47,520	14,908,284	9,938	722,995	.....	.....
din	3,327	654,184	689	49,419	72	56
derson	22,607	6,175,343	9,496	566,610	556	243
ry	89,260	24,894,178	16,335	1,344,291	1,686	509
quois	55,146	13,342,600	9,897	716,500	1,446	1,110
sson	2,965	595,449	2,311	175,210	317	256
per	4,578	819,773	2,404	132,552	269	390
erson	7,191	1,531,683	3,633	215,527	.....	.....
ev	14,313	3,459,501	1,373	127,265	.....	.....
avless	46,873	10,050,298	19,431	1,269,087	695	279
nson	14,025	7,799,680	454	30,120	243	132
e	29,469	83,485,314	2,013	176,285	611	231
kakee	31,874	5,108,293	1,688	215,355	738	561
dall	25,445	8,130,812	1,793	77,515	494	177
ox	55,549	16,267,344	24,945	3,420,000	1,693	531
e	14,614	3,843,177	219	17,171	83	18
alle	69,886	20,670,942	11,112	1,880,036	435	728
vrence	7,664	1,636,059	4,214	251,619	307	251
...	.....	.....	.....	.....	.....	.....
ingston	68,778	17,705,336	5,876	515,615	1,501	815
ian	37,101	12,523,191	6,576	1,256,987	751	405
on	34,471	7,384,118	4,433	302,814	819	405
coupin	39,990	9,733,859	8,780	597,489	656	255
lison	21,267	4,964,723	3,435	287,478	500	200
rion	7,168	1,359,103	1,504	92,580	414	310
rshall	31,220	7,965,472	3,560	239,730	660	217
son	.....	.....	.....	.....	.....	.....
ssac	1,476	325,978	577	39,358	98	80
Donough	36,774	3,419,982	13,608	217,728	.....	.....
Henry	37,206	8,486,131	1,605	92,076	789	188
Lean	86,151	21,454,709	17,233	1,239,834	2,208	916
nard	19,892	4,441,029	8,291	550,179	396	189
rcer	44,882	13,213,915	27,042	1,918,014	1,360	440
nroe	1,264	292,360	518	42,840	142	167
ntgomery	22,507	5,216,117	3,621	220,115	751	419
rgan	21,736	5,971,280	7,236	868,320	450	150
ultrie	14,815	2,920,692	5,570	308,311	.....	.....
le	45,360	12,432,914	15,635	1,077,096	1,314	461
oria	48,480	13,123,615	17,694	1,295,114	966	434
ry	758	160,095	1,038	84,690	123	81

Agricultural Statistics, 1879—Continued.

Counties.	Fat Hogs Sold.		Hogs and Pigs died of Cholera.		Horses.	
	Number	Gross weight.	Number	Gross weight.	Number colts foaled.	Number died. Any age.
Piatt	30,396	5,826,521	13,843	607,157	419	385
Pike	39,374	9,664,470	7,807	473,065	80	[illegible]
Pope	2,983	764,695	1,102	90,682	264	134
Pulaski	3,000	700,000	500	37,500	300	[illegible]
Putnam	13,189	4,025,954	4,614	234,935	296	104
Randolph	4,186	932,164	2,509	177,044	392	[illegible]
Richland	5,789	1,377,782	1,316	109,228	.....	.....
Rock Island	31,283	9,328,880	10,283	660,570	545	265
Saline	5,059	.....	1,343	.....	212	156
Sangamon	51,929	13,305,918	18,039	1,196,109	1,323	484
Schuyler	19,748	5,077,942	5,848	334,450	586	[illegible]
Scott	15,615	4,196,264	3,065	222,960	.....	.....
Shelby	25,866	.....	5,669	.....	.....	.....
Stark	28,642	7,814,202	8,627	544,245	544	225
St. Clair	5,758	1,443,655	1,761	133,700	364	291
Stephenson	43,153	10,764,977	25,652	1,811,748	914	465
Tazewell	33,594	8,508,902	13,030	966,157	.....	.....
Union	1,971	374,178	1,174	71,970	244	125
Vermilion	49,483	10,669,980	10,944	778,796	1,085	735
Wabash	6,366	1,821,019	5,706	237,246	124	124
Warren	47,174	13,390,007	20,909	1,220,959	1,464	482
Washington	3,039	617,975	1,860	169,484	470	315
Wayne	9,714	2,129,926	3,159	171,502	506	316
White	10,509	2,377,396	9,778	545,042	346	[illegible]
Whiteside	47,684	12,852,480	15,724	1,198,416	.....	.....
Will	36,938	9,416,725	2,784	95,440	1,208	467
Williamson	2,651	525,746	2,610	194,605	314	160
Winnebago	33,667	9,687,716	5,706	421,186	647	282
Woodford	36,512	9,234,745	8,879	535,638	986	317
Total	2,543,278	702,102,812	676,738	49,326,591	49,952	24,977

APPENDIX.

PROCEEDINGS

OF THE

ILLINOIS STATE DAIRYMEN'S ASSOCIATION,

AT ITS SEVENTH ANNUAL MEETING, HELD AT

Marengo, Ill., Dec. 15, 16, 17, 1880.

R. P. McGLINCY, Secretary.

The Eighth Annual Meeting will be held at Dundee, Ill., Dec. 14, 15 and 16, 1881.

OFFICERS FOR 1881.

PRESIDENT,
DR. JOSEPH TEFFT, Elgin, Ill.

SECRETARY,
R. P. McGLINCY, Elgin, Ill.

TREASURER,
R. M. PATRICK, Marengo, Ill.

VICE-PRESIDENTS,

C. C. BUELL, Rock Falls, Ill.,
S. W. KINGSLEY, Barrington, Ill.,
E. H. SEWARD, Marengo, Ill.,
J. R. McLEAN, Elgin, Ill.,
ISRAEL BOIES, Davis Junction, Ill.,
I. H. WANZER, Oneida, Ill.,
L. B. PARSONS, Flora, Ill.,
H. W. MEADE, Hebron, Ill.,
N. ELDRED, Gilman, Ill.

MEMBERS

OF THE

LINOIS STATE DAIRYMEN'S ASSOCIATION,

FOR 1881.

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oseph Tefft	Elgin,	Illinois
Anderson	"	"
McGlincy	"	"
Larkin	"	"
Church	"	"
. Gould	"	"
Lord	"	"
Lovell	"	"
Chisholm	"	"
Barclay	"	"
McLean	"	"
Waldron	"	"
. Cox	"	"
. Wright	"	"
S. Wilcox	"	"
Adams	"	"
Weld	"	"
Gifford	"	"
Weld	"	"
than Tefft	"	"
. Thompson	"	"
Chisholm	"	"
. Tefft	"	"
thorne Bros	"	"
. Ketchum	"	"
Bosworth	"	"
. Town	"	"
. Lawrence	"	"
. Boies	Marengo,	"
. Patrick	"	"
hompson	"	"
. Goodrich	"	"
. Heath	"	"
. Frink	"	"
Lester	"	"
erson Pringle	"	"
V. Bingham	"	"
r Simpson	"	"
. Bartholemew	"	"
er Barber	"	"
. Vail	"	"
R. Curtiss	"	"
Riehl	"	"
in Spencer	"	"
. Carpenter	"	"
. Hackley	"	"
. Hall	"	"
. Bliss	"	"
I. McDowell	"	"
V. Sheldon	"	"
rotzman	"	"

John McLean	Woodstock,	Illinois
T. McD. Richards	"	"
G. W. Hicks	"	"
Waldo Joslyn	"	"
J. H. Foote	"	"
C. N. Webber	"	"
Farmers' Review	Chicago,	"
J. G. Lumbard	"	"
Charles Baltz	"	"
Western Rural	"	"
C. C. Buell	Rock Falls, Ogle Co.,	"
O. S. Cohoon	Belvidere,	"
L. W. Lawrence	"	"
S. W. Kingsley	Dundee, Kane Co.,	"
H. C. Edwards	" " "	"
Ed. Morse	" " "	"
E. V. Lapham	Morrison, Whiteside Co.,	"
Geo. Sands	Capron, Boone, Co.,	"
Calvin Gilbert	Union, McHenry Co.,	"
E. C. Hayes	Kings, Ogle Co.,	"
H. H. Beldin	Union, McHenry Co.,	"
S. M. Fan	" " "	"
James Mills	" " "	"
Israel Boies	Davis Junction,	"
Joseph Mullis	Harmony, McHenry Co.,	"
Geo. Olmstead	Genoa, DeKalb Co.,	"
M. H. Underwood	Riley, McHenry Co.,	"
N. Eldred	Gilman,	"
L. B. Parsons	Flora,	"
I. H. Wanzer	Oneida,	"
H. W. Mead	Hebron,	"
A. D. Albro	Wayne,	"

HONORARY MEMBERS.

Mrs. C. C. Church	Elgin,	Illinois
" F. S. Bosworth	"	"
" Frank Crosby	"	"
" Geo. Sands	Capron, Boone Co.,	"
" A. Patrick	Marengo,	"
" R. M. Patrick	"	"
" L. Woodard	"	"
" J. T. Wells	"	"
" Eliza K. Brown	"	"
" W. W. Bingham	"	"
" L. W. Sheldon	"	"
" S. K. Bartholemew	"	"
" L. Barber	"	"
Miss Virginia Bingham	"	"
" Kate D. Shurtleff	"	"
" Francis E. Hunt	"	"

ILLINOIS STATE DAIRYMEN'S ASSOCIATION.

SEVENTH ANNUAL MEETING.

HELD AT MARENGO, ILLINOIS, DECEMBER 15, 16 AND 17, 1880.

The Association was called to order at 2 P. M., on Wednesday, December 15, 1880; Dr. Tefft, president, in the chair.

The president introduced R. M. Patrick, of Marengo, who delivered the following

ADDRESS OF WELCOME.

Mr. President and Members of the Illinois State Dairymen's Association:

In the absence of the Hon. Ira R. Curtiss, who was selected to deliver the address of welcome on this occasion, I have been requested, in behalf of the citizens of Marengo, and the dairymen of the surrounding country, to bid you a hearty welcome to our homes, on this the seventh annual reunion of the Illinois State Dairymen's Association.

The great progress made in the dairying regions of the northwest during the last few years, and the many benefits derived from these annual reunions, and the discussion of the various topics which directly interest the dairymen, should induce every dairyman in northern Illinois to meet once each year, for consultation, benefit and recreation.

Notwithstanding the seeming great prosperity of the dairy interests in the northwest, these interests never before stood in so great danger, from the many new inventions and devices for adulterating both butter and cheese, as at the present time. These adulterations of butter and cheese, by the substitution of lard and tallow, are becoming so great, that it is high time that every dairyman throughout the great northwest should join hands in suppressing these great frauds, which are now sapping the foundations of every dairyman's industry.

One other great evil which now threatens the future prosperity of dairymen, is the manufacture of cheese so heavily skimmed as to make it nearly unfit for food, and which, beyond a doubt, is rapidly reducing the consumption of this article in our own country, and has recently so cut down the exports of cheese to Europe as to make it nearly impossible to sell for export the cheese made in northern Illinois. It is safe to say that these two causes combined have caused nearly all the decline in the price of this class of cheese during the last two months.

The subjects outlined for discussion at this meeting are among the most important ones presented to this Association for discussion since its organization.

Though but a few names among the many hundreds of prominent dairymen in northern Illinois appear upon the programme presented you, doubtless most practical dairymen present will be called upon to give their views and the results of their experience upon the subjects presented; and it is hoped that these discussions and comparison of views by practical men may so benefit and interest all who may attend these meetings, that they may go from here feeling that the time spent at the meeting has been pleasantly and usefully employed.

Again I bid you a cordial welcome to our homes.

At the conclusion of Mr. Patrick's address, the president introduced R. P. McGlincy, of Elgin, who responded on behalf of the Association, as follows:

Mr. President, Citizens of Marengo, Gentlemen: On behalf of the Illinois State Dairymen's Association, I accept the hearty, cordial welcome you have extended to us, and trust that our sojourn in your beautiful town may be to us as pleasant as your welcome is cordial. I fear, however, you do not know that you are welcoming this Association with

anti-huff, oleomargarine, suine and other questionable compounds, which of late have been given prominence by those who seem to be determined to make something out of nothing, and that too to the injury of the legitimate dairy industry. But while we bring these things to you, we bring them in a shape wherein we can ask your coöperation in stamping them out of existence, and unless honest dairy goods can rid the country of these palpable frauds, the producers of the milk, the manufacturers of butter and cheese, and the consumers, will suffer from these frauds. With united action, wise counsels, and a determination to produce the very best, we may succeed in driving out of the markets, anti-huff, which has ruined a large number of western cheeses; lard cheese, which must ultimately ruin our production; oleomargarine and suine, which destroy the sale of our genuine creamery butter. While we bring these things to your notice, rest assured that this Association will put its seal of condemnation on all such frauds,—and asks you, citizens, to aid it in its good work.

Again we return you our unfeigned thanks for your generous hospitality and words of good cheer, and trust you will have no cause to regret the welcome you have accorded us.

ANNUAL ADDRESS OF THE PRESIDENT.

Fellow-Citizens, Members of the Illinois Dairymen's Association:—Ladies and gentlemen, we meet here to-day as American citizens under the time-honored privilege of associating ourselves together for the purpose of spending a few hours in social communion and mental improvement.

The year now passed has been one replete with many incidents of deep and abiding interest to the dairymen of this country, and especially so to those of Illinois.

In the early part of last season or that of 1879, some of the products of the dairy were put upon the market and sold for little more than a nominal figure. Then went up the cry of over-production, and many dairymen became alarmed, and not a few prepared to close their dairies.

A short time prior to this the United States prepared to resume specie payment, the result of which has been good money and plenty of it, too. You ask what this has to do with the dairy interests of this country. Well, let us see. Money being plenty, every honest laborer who desired to work has had plenty to do and good pay for his labor. The result of this has been a much larger home consumption of both butter and cheese than of yore.

The evidence of this is in the fact that this country never produced a larger amount of dairy products for the same length of time than it has in the present season. While this increase of production has been going on, the exportation of butter from January 1 to December 1, 1880, has fallen behind that of last year for the same time 7,466,448 pounds, and the exportation of cheese has dropped off 4,401,489 pounds for the same time, and yet there has been no glut of the markets of either of these articles; on the contrary, the demand has been so great for the products of the dairy that it has stimulated the Frenchman, Yankee, or some other inventive genius to adulterate good butter and put it upon the market as gilt-edge creamery.

In this adulteration of butter we are informed that talc, or what is commonly known as soap-stone, has been used to considerable extent in the United States. Then, to cap the climax, a western city, known to the world as the largest packer of the suilline quadruped, has taken it into its head to adulterate butter with some of the products of the slaughter house and give it the euphonic name of suine or butterine. We have seen of this butter that contained 66 parts of hogs' lard or other grease, leaving but a small part of the original butter in the compound, and yet we are informed that this manufactured suine has been put upon the market and sold to unsuspecting purchasers as fine creamery butter, and at full price of that article. As we are passing on, you will please allow us to cast a thought at oleomargarine, a substance made by churning milk, cream or butter-milk with tallow oil, refuse grease and some other admixture. We have been informed that recently the use of oleomargarine has been condemned by the French government as unwholesome food for Frenchmen to eat, although of French origin.

We cannot consent to pass this subject without giving you a hint on the adulteration of cheese. The great desire to make much out of little or nothing, has induced some of our factorymen of our country to experiment in the use of foreign substances in the process of cheese making. First came a mixture of butter with cheese; next, oleomargarine put in its appearance, and so also did hogs' lard and deodorized grease; and lastly, or more recently anti-mottling and anti-huffing compounds raise their hydra heads and make their mark wherever they go. We are forced to believe that the active principles of those last named compounds consist of carbonate, or caustic soda, and potash. It would appear to a careful observer that some, yea, many, who inhabit this continent (saying nothing of others), believe the human stomach of the American people to be made of cast iron and lined with antediluvian case-hardened copper, judging from the amount of adulterated food found on the markets of our country. We have invited your attention to this subject, not because we wish to agitate this question to the injury of the honest manufacturer of any product or food for the human family, but solely for the purpose of provoking some action of this convention looking towards some legal enactments by the powers that be to protect the honest people of the United States from this slow, painful, yet sure slaughter of human beings by the wholesale adulteration of their food and medicine. The time has come when the people, yea, the whole people of our country, should rise in their might and proclaim their determination to have some important change brought about on this subject, a subject of vastly more importance to all than has been before the American people for the last decade.

Under the present existing state of things, would it not be eminently proper for every manufacturer to put upon the package containing his goods his name and place of business? While, possibly, it might not be of use to him, still, we fail to see wherein it would be likely to injure him, if he is an honest man and produces an honest commercial article

We can but see that in course of time it would redound largely to his benefit. An honest reputation in any business is the best stock that a man can put in trade. If rightly nurtured and cared for, it will stand by him when dollars and cents have fleeted away and are gone. Now, while we might not wish to detract in the least from the old adage, that an honest man is the noblest work of God, we would most emphatically say that an honest man is the noblest work of his own nature or conscience.

He has it in his power to so conduct himself as to be honored and respected by his fellow-man.

You will please allow us to reiterate a part of what we have already said, that the exportation of dairy products has largely diminished within the last year. We ask why this should be so? Have not the Europeans used the dairy products as largely the present season as heretofore?

Can it depend upon the quality of the goods we have put upon their markets?

We are aware that a large amount of cleomargarine and suine, or butterine, has gone forward to fill the place of honest butter. How much this has had to do in diminishing the amount of butter exported, we do not know. We fear that the quality of cheese is not as good as it should be for exportation. It would hardly be possible that the difference in the price of either butter or cheese, between 1879 and that of 1880 (which we figure for the eleven months on an average of three cents and nine mill per pound on cheese, and four cents and two mills on butter, as per Elgin Board of Trade), would be sufficient to cause the drop in the exportation of the present year. It would appear this matter should receive the careful attention of the dairymen or factorymen of Illinois. The manufacture of butter and cheese in Illinois must be largely on the increase if we are allowed to judge by the reported sales of this season as compared with former seasons on the Elgin Board of Trade. The present season is far in excess of that of any other year since the organization of said board.

Some three years ago a committee was appointed by the convention for the purpose of petitioning the legislature for the enactment of a law placing the Illinois Dairymen's Society on a standing with the Horticultural Society and other like associations of the State; also, to establish an experimental dairy station for the benefit of the dairymen of Illinois. This committee made a report last year, and was continued for another year. The legislature not having been convened during the past year, we presume the committee will have but little progress to report.

If Illinois had had such a station in successful operation the present season, it no doubt would have saved the manufacturers of dairy products thousands of dollars in the few experiments made by them this season in trying to better their cheese so as to realize a larger dividend for the dairymen who produced the milk for them to make up.

In conclusion, we would say, that the old year is about to depart, leaving us with a fair market and no accumulation of strictly gilt-edge butter or prime cheese on hand. The inception of the new year will, then, find us with a market open and ready to receive and pay a fair price for strictly prime goods.

This being the case, it stands the producers of milk in hand, together with the factorymen, to look closely to the articles which they are about to put upon the market the coming season. The time must soon come when dairy products will be sold strictly on their merits. It is highly important to dairymen that an article sufficiently good in quality be made to recommend itself to the people of our country as a wholesome and valuable article of food for the many.

It is a well-established fact that the people of our country only consume about four and one-half pounds of cheese *per capita*, while the people of England consume about fourteen and one-half pounds *per capita*, annually.

Good chese will compare favorably with the best of our foods—not excepting beef and pork.

Then, why should we not eat it more freely? The answer is, simply, because a prime article cannot readily be obtained.

It would seem that the best interests of the manufacturer of this great staple would be, to produce a better article, and thereby stimulate a larger home consumption.

A home market is the best of all markets, if sufficiently active.

The future prospects of this great industry in our country depends very much upon the course taken by those having charge of the same. With proper care and judicious management, it may become a lasting benefit to the dairymen and the country at large.

The programme was then taken up.

On topic No. 1—"Which is the more profitable to the dairyman: to deliver milk once or to deliver it twice per day?"—H. C. Edwards, of Dundee, was called upon, and said he could not give any information in the matter that would be of value. Had shipped milk to Chicago for twelve years, and had had no experience in carrying to a factory. At one time, however, he had, instead of shipping the milk, skimmed the milk and shipped the cream, to the amount of two cans per day. He had tried making butter out of the second skimming from the milk, but the experiment was a failure. From this fact he judged that it was better for the milk to be handled but once, and, consequently, delivered to factories twice per day.

C. C. Buell should much regret to see the question dropped at this point. The question is, which is the more profitable to the dairyman? and the answer should be to that point, and should come from a man who handles milk. He had handled milk where he found it necessary to let the cream stand twelve hours before he could make butter, and he had at times, when making butter in the winter, warmed his milk before setting it, and his experience had satisfied him that it was just as profitable, to say the least, to deliver but once per day.

S. K. Bartholomew: If milk is used for the manufacture of butter exclusively, it should be delivered twice per day. When delivered this way more butter can be manufactured than from the same amount delivered once; but if cheese is also manufactured, it will be

found that the cheese is of a poorer quality. He was thoroughly convinced that it would be greatly to every farmer's advantage, if he lived convenient to a factory, to deliver his milk twice per day. In answer to a question by R. M. Patrick, he said he thought if milk was handled as it should be, there would be little or no loss of cream in carrying it after it had set over night. He thought, however, that if the cream is not skimmed, and full cream cheese is made from milk thus handled, there will be a loss of cream. It will be seen to float on the whey after it is drawn off. If a farmer lived a long distance from a factory, he believed it more profitable to take but once per day, whether butter or cheese is made. In answer to another question, he said he would not want milk carried but once per day, to get too cold, or there would be a loss of cream on the can. After cream is once stirred up, you never could get it all to come to the surface again. In handling milk, the point was to get it to its destination before much cream had arisen. He preferred warm milk brought to him than milk which had been brought a long distance. If he was going to make butter alone, he would prefer warm milk rather than milk which had been cooled enough to allow the cream to rise. After the cream globules have once come to the top and are then agitated to any great extent, it is impossible to bring them again to their first condition. In reply to a number of scattering questions, he stated that if milk was skimmed two and one-half pounds to the hundred, cheese could be made from it that would bring eight cents per pound, while if it was skimmed four pounds, no market could be found for the cheese. He called two and one-half pounds partly skimmed, and four pounds skimmed. The more you skimmed, the better quality of the butter made, and *vice versa*.

R. P. McGlincy said that Streat, of Ohio, a prominent manufacturer, paid one cent per gallon more for milk delivered twice per day, during the warm months of July, August, September and October, than for that delivered but once. He had found by long experience that it paid him to do it. Others in his neighborhood, seeing how profitable it was, were instituting the same plan.

Bartholomew thought that all factorymen could afford to pay that much more for a double delivery.

A diversion was here made by C. C. Buell, who asked Dr. Tefft what made the flavor in butter. The doctor stated that it had been found that the flavor of butter depended upon the acids formed; consequently, if any of the lactic acid was destroyed in the process of manufacture, your butter was spoiled.

W. W. Bingham asked if this necessary acid was developed where the cream was taken from the milk while it was yet sweet.

Dr. Tefft replied that the acid would develop in the cream if it was left to sour.

The topic (No. 1) was then resumed.

O. S. Cohoon said that in his neighborhood a proposition was made by some of the farmers to take their milk to the dairy twice per day. They all tried the experiment, but before the end of the month they reverted to the old plan, all of them being satisfied that there was not enough extra profit to pay for the extra trouble.

C. H. Larkin was called upon, and he stated that he knew nothing about the question further than having seen Hintze, of Elgin, try taking milk twice per day, and give it up in a short time. Mr. Hintze had told him that he gave it up simply because it required two sets of employes to take care of the two receipts, and he could not afford to pay two out of it.

The following paper on the same subject was presented to the convention.

ISAAC BOIES' PAPER.

"Which is the more profitable to the dairyman, to deliver milk once, or to deliver it twice per day?"

The dairyman, if a good one, should never keep a poor milker, and should aim to take such care that the cow will yield a bountiful supply of good milk. When he has got the milk he should take good care of same; in hot weather, cool properly; in cold, take care it don't chill. My own experience and tests go to prove that for butter alone, or butter and cheese, there is 20 to 25 per cent. in favor of delivering milk night and morning. The sooner milk is delivered after being properly cooled, when cooling is needed, then set, not to be disturbed until skimmed. In proof of my opinion, I will state the result of nineteen tests at Rock River factory the winter of 1879. No test less than 25 per cent. in favor of twice per day delivery. These tests were for butter alone. This winter, at Genoa factory, I made two tests for butter and cheese, and found the loss was more than last season at least 35 per cent., allowing both articles to sell alike, which they won't do; the twice-a-day milk makes much the finest butter when delivered promptly after milking. Take 1,000 pounds milk to-night, carry it prompt to factory, set 36 hours if temperature is cool enough to stand that long, skim, work cream, when ready, into butter, work milk into cheese; then take 1,000 pounds milk and let it stand in cans over night, deliver next morning, set same as other, skim when ready, work same as the other into butter and cheese, sell at same price, and if your trial proves as my two, 10th and 13th of this month, you will find 35 per cent. difference in favor of prompt delivery as soon as drawn from cow. The milk of four cows, if delivered to factory prompt twice per day, will make more butter and cheese than five equally good cows, their milk being delivered once per day only. No test out of 21, in 1879 and 1880, has shown less than 25 per cent. in favor of twice-per-day milk. Of course, dairymen cannot afford this.

Topic No. 4.—"The cost of producing winter milk, compared with the cost of producing summer milk," was then taken up.

W. W. Bingham: He had had no experience in comparing the cost of winter and summer milk. He knew that it depended not only upon the amount of feed given cows, but upon quality as well. He had made some estimates, which he could give.

Where a cow averages 25 pounds of milk per day, the cost per hundred of the milk will be 60 cents; where the average is 30 pounds per day, the cost will be 50 cents per hundred; where the average is 35 pounds per day, the cost is 34 cents per hundred; where the average is 40 pounds of milk, the cost will be 33 cents per hundred. This is on the basis of feed costing fifteen cents per day. Estimating feed at eighteen cents per day, an average production of 30 pounds of milk per day would make a cost of 60 cents per hundred; 35 pounds per day, 41 2-5 cents per hundred; 40 pounds per day, 39 3-5. As will be seen, the more milk a cow averages, the less the milk costs per hundred.

On a basis of feed costing 20 cents per day an average of 25 pounds per day will bring the cost of milk 80 cents per hundred; 30 pounds of milk, 66⅔ cents per hundred; 35 pounds 46 cents per hundred; 40 pounds, 44 cents per hundred. He thought it made a little difference which was being made, butter or cheese.

R. M. Patrick said he would state to begin with, that he fed and watered his cows by rule. He directed his hands to feed a certain amount each day. In this way he had found exactly what his milk cost him. This winter he estimated that his milk cost him 55 cents per hundred pounds. He had heard some of his neighbors say that they could produce winter milk for 53 cents per hundred, but he had been unable to make it less than 55 cents. He raises his own feed. This winter the flow of milk had not been so plentiful as last year, but he was well satisfied that milk could not be produced for less than 50 cents per hundred. When bran is $10 per ton and other feed corresponds in price, it will cost from 50 to 55 cents per hundred to produce winter milk. He feeds his cows 13 pounds of grain each day, alternating different kinds of grain.

Kingsley said he would differ from Patrick. He kept 60 cows and he thought he could make winter milk cheaper than summer milk. He feeds corn meal three times per day, with corn stalks at noon. To the cows giving milk he fed a six-quart pan of meal each time, and watered all once per day.

Hon. Lawrence had never kept an exact account of what his feed cost him. His dairy was half Shorthorns. One-half of them come in in March, and the other half in October. He had adopted the plan of feeding his dry cows just as much meal in the winter, as he did those giving milk, and he found that it paid. He raises calves to supply his dairy. He divides his cows and thought it profitable. In feeding his cows he found that when hay was $6 per ton he could not afford to feed it, and changed to wheat straw. When he first tried wheat straw it was a great surprise to him to find that it increased the flow of milk. In less than 36 hours after he commenced it he noticed a change. Late years he took more pains to fill his barns with good clean wheat and oat straw when hay was scarce, and fed it with good results. In grain feeding he first gives his cows 4 quarts of bran and shorts mixed—say two parts bran and one part shorts; then he gives next time one quart of meal made from equal parts of corn and oats. In this way he keeps his animals always in good order.

R. M. Patrick thought every farmer should know just what his feed cost him. There was a considerable difference between feeding dairy cows and feeding Shorthorn stock as described by Mr. Lawrence. In the one case you fed for milk and in the other for beef. He reiterated that it was a fact that every man could and should know just what it cost him to produce his milk. Three years ago it cost 75 or 80 cents per hundred pounds to produce milk on account of expensive feed. None of the dairymen made any money, for it took all they received to pay for the feed. It is a fact that milk must bring $1.25 per one hundred pounds in the winter, to equal a summer price of 75 or 80 cents. Some people think that you cannot feed too much, but this is an error, as any one who will look into it can see.

Lawrence: Was present when Dr. Miles opened his Silo pit, at Champaign. The food was in a very fair condition. He had been reading articles in the newspapers since then, in relation to Silo, and believed that it made cheap feed.

Cohoon: How much more will it cost to keep a cow that weighs 1,200 than one that weighs 800; and will a small cow give as much as a big one, other things being equal? He had cows that weighed from 1,200 to 1,400.

Patrick: It is conceded by men who have looked into it, that the cow that weighs 1,200 will eat less than the one which weighs 1,400; each cow needs a certain amount of feed to sustain life, and as the largest cow requires the most, she will be the most expensive. The experience of all the farmers who have paid any attention to the matter proves that the most profitable cow is the one that weighs from 1,000 to 1,200.

Adjourned to 7 P. M.

Evening session called to order at 7:30.

On motion, E. H. Seward, W. W. Bingham, L. Woodward and A. Thompson were appointed a finance committee.

On motion of R. M. Patrick it was decided to ask the ladies to become honorary members of the association.

W. W. Bingham moved that Mrs. J. M. Frink, Mrs. Sheldon and Mrs. F. G. Hackley be added to finance committee.

THE PAST AND FUTURE OF THE ELGIN BOARD OF TRADE.

By R. P. McGlincy, Secretary.

Mr. President, Ladies and Gentlemen:—A year ago was accorded to me the honor of preparing a paper on "The Acts and Doings of the Elgin Board of Trade," in which I gave the figures in gross of all transactions which had occurred since the organization of the board in 1872, and of the transactions of the year 1879, in detail. Then I tried to give all of importance or of interest to the general public, so that in this article it will not be necessary to go into details of the past as elaborately as was done then; still a brief reference to the past history of the board may not be out of place here, as so many of the members of the association are, or ought to be, interested in the welfare of the board of trade, for, with many others, I feel that the board should interest not only the producers of milk,

and the manufacturers of butter and cheese, but every one who consumes an ounce of these products, for it was organized to benefit all of these classes, and so long as it is conducted for the benefit of those several classes they should manifest a lively interest in its transactions.

Away back in the history of dairying in Northern Illinois—so long ago that few of us remember the evils that befell the business, and which caused the pioneers of the industry great alarm, because of the unexampled wickedness of the men who were then engaged in the commission business in Chicago and other dependent cities,—the Elgin Board of Trade was organized, as a sort of mutual protection society—that is, where the manufacturers could find protection against the grasping commission men, and where the latter might obtain protection from the skimmers of the former. Those who had engaged in the dairy business in the northwest, and especially about Elgin, did so for the money that was in it, and not for the fun of the thing, as some people supposed, and after having developed the industry, and demonstrated to the incredulous Easterners that good butter and cheese could be produced on the broad and fertile prairies of Illinois, as well as in New York State, they concluded that in order to make both ends meet—or both butter and cheese and money—something must be done to give them a good, reliable market and insure them prompt pay for their products, for previous to the organization of the board, in 1872, the goods had been disposed of on commission, and by the time the freight, cartage, storage, shortage, and several other "ages" known to the trade, had been deducted from the shipments, the manufacturers found that the account of sales were very short, and occasionally they found themselves indebted to the commission man, and they had nothing to pay the milkmen or their help with, at least that is about the way some of them would state their grievances when they met in annual convention to talk over their future prospects. Well, as this kind of business would soon deplete a national bank—the flatism had not been discovered—it was deemed wise and prudent to have a change of policy; and so, with high hopes of future wealth, on the part of some, and many misgivings on the part of the less sanguine as to the final result, the Elgin Board of Trade was organized on the 23d of March, 1872, and to it the hopeful turned their longing eyes like a storm-tossed mariner when he beholds the glimmering light of the friendly beacon.

It was the intention of the projectors of the board to create a market at home for the sale of butter and cheese, and instead of the factorymen chasing around the country endeavoring to sell their products, the buyers were to come to them, or to Elgin, the acknowledged center of the circumference of the then known dairy world of the northwest, for, be it remembered, but little dairying on a large scale was carried on in Wisconsin, and Iowa had not yet taken her first lesson in the A B C of the business. A home market was thus established, and although the first year of its existence did not give the board of trade a world-wide reputation, yet it gradually paved the way for this achievement, and to-day the board of trade of Elgin is as well-known among the dealers in the market centers of America and Europe as any board in the United States, whether it be for the sale of dairy products, or grain and pork or bonds, or other commodities, and the Elgin Board of Trade has become an important factor, for dealers everywhere look to its meetings as an infallible guide for establishing the prices of butter and cheese. New York City, the great butter and cheese mart of the United States, and from which port nearly three-fourths of the butter and cheese of the United States is exported, waits with feverish excitement for news from Elgin giving the quotations, especially on butter, and particularly at this season, when a slight advance may disturb the market for a day or two; and other markets are also anxious to learn the quotations, and arrange for telegraphic reports from this recognized dairy center.

Frequently the sales of butter are made at a higher figure on the Elgin Board of Trade than on any other market, and this of itself proves the excellence of the product. For a few years past Elgin butter has been quoted in New York side by side with the fancy brands of Orange county, and to those who have watched these quotations there has almost invariably appeared the fact that the Elgin creamery brand was a little more desirable stock, and more ready of sale than the other brands.

The care taken in the manufacture and the determination to maintain the high standard attained has been the means of placing the Elgin product on the top shelf of the markets. This has been done in the past, and beside the individual effort in this direction, the board has given no little aid to the matter, assisting its members, who were strangers, to make good sales, and by advice and encouragement endeavoring to stimulate all to manufacture the best quality of goods at all times. Many of the members, in the early history of the board, gladly accepted the advice and profited by it, and they have carefully noted any improvement made by others, and were not long in following the examples set by their more skillful competitors in the business. There are to-day a few members who might learn something of their elders if they did not think that they knew it all themselves.

The board was organized on the 23d of March, 1872, and at one or two periods since then has passed through some very severe trials, which nearly cost it its existence, but happily wise counsels prevailed, these critical stages were passed, and to-day the board stands in the very front rank of the dairy organizations of the land. It has a membership of over 200, scattered through Illinois, Wisconsin, Iowa, Missouri, New York, and probably one or two other States. These embrace dealers, manufacturers and dairymen, but of the latter there are only a few.

Since the board was organized the total sales of butter and cheese to the present time amount to $6,087,695.81.

For the year 1880 the sales have amounted to over three-quarters of a million dollars more than they have been for any one year since the board was organized.

The sales the first year, 1872, amounted to $81,000; in 1873, $219 177.53; in 1874, $368,258.58; in 1875, $496,220.04; in 1876, $767,640.68; in 1877, $1,059,085.08; in 1878, $775,597.15; in 1879, $539,143.6[illegible]; in 1880, $1,801,303.09. A magnificent sum, truly.

In 1880 the number of boxes of cheese sold reached 253,940, aggregating 9,226,474 pounds; and the pounds of butter, 2,670,877. Allowing 500 boxes of cheese to a car, it would require 468 cars to transport the cheese to market; and 136 cars to put the butter into market.

The following table will show the sales by months as they were reported on the board:

Months.	Boxes cheese sold.	Pounds.	Average price.	Pounds butter sold.	Average price.	Total sale.
January	19,762	786,286	11 3-4	169,717	33 3-4	$139,750 01
February	11,612	421,784	12	191,010	37	120,049 32
March	20,155	717,661	10 4-5	255,072	32 4-5	174,805 62
April	20,557	785,279	10 1-2	199,152	24 1-2	138,104 24
May	16,259	604,[illegible]58	9 1-2	216,576	21 1-8	103,508 76
June	23,936	996,385	7 3-5	243,276	19 1-5	128,245 72
July	23,425	1,144,966	7 1-2	207,831	23 1-4	120,044 28
August	23,351	956,563	10 1-4	243,283	25 3-5	164,660 06
September	18,528	777,880	11 1-2	180,550	29 1-4	141,684 73
October	20,776	801,717	11	245,918	29 1-4	167,831 12
November	23,393	862,537	8 1-2	343,956	33 1-4	190,024 72
December	31,187	1,088,153	8	359,691	34 1-2	212,014 09
Total	233,940	9,226,474	.....	2,670,877	.....	$1,801,303 09

The highest price attained for cheese was January 20, when it sold for 13 cents, and again on February 3 it sold for the same. The lowest price was in July, when it sold at 5 cents. The highest price for butter was 38 cents, February 24; lowest price 18 cents, June 8.

The past history of the board is an excellent one, and the members, those old stand-bys in particular, are to be congratulated, and deserve praise for the showing. President Teft, who has occupied the position since the first meeting in 1872, is entitled to, and receives no small share of the praise for the interest he manifests in everything pertaining to the board. Always alive to the needs of the organization, he seems to be the right man in the right place, and the board of trade, without him to preside, would be like the "play of Hamlet with Hamlet left out." He is ever ready to advise with all in any matter on which they may consult him, and his advice is eagerly sought by the members. May he long be spared to preside at our meetings.

The future of the board is not so readily portrayed as the past, at least by the secretary. Man has a longing desire to raise the veil of futurity and peer into the beyond, but an All-wise Providence carefully guards the future as a miser does his wealth, and we can only speculate as to what the future has in store for us. But judging the future by the past, the board must continue to benefit its members and all dairymen who live within a reasonable distance of it. The past year it has aided in increasing the price of milk, whether shipped to Chicago or sold at the condensing factory. It has given factorymen a market at home, enabled them to become better acquainted with dealers in all parts of the country, and enabled them in establishing a world-wide reputation for the production of the best butter made anywhere.

The future of the board must depend largely upon the individual action of its members. Their cheerful compliance with all just and reasonable rules will be necessary; factorymen should promptly report their sales, so that the extent of the business may be arrived at, for there can be no question that the publishing of reports weekly of the sales on the board has been a benefit to members; the seller should adhere to the almost universal rule adopted during the past year, and sell, instead of commissioning their goods. In the future more dairymen should be members of the board. It has benefited them, and they should help sustain it. After becoming members, they should at least occasionally attend the meetings.

The future of the board requires that each member should set his seal of condemnation on all attempts to manufacture or sell any adulterated butter or cheese, and unless this is done and the fact advertised, the future of the board may be considered an unsolved problem. But with the experience of the past season, no apprehensions may be felt concerning the future use of anti-huff, which, at least in this section, has outlived its usefulness. Suine, which at best is a very questionable compound, has never been countenanced by the board, though individual members may have made and sold it. Lard cheese should be tabooed; in fact, all adulteration should be disowned and discouraged by the board and its individual members, and every possible effort should be put forth to manufacture the highest possible standard of goods. Let the aim be excellence of quality rather than quantity.

"*Oleomargarine.*"

From paper on "Adulterations," read before the Boston Board of Trade, Nov. 11, 1880, by Geo. T. Angell, President Massachusetts Society for the Prevention of Cruelty to Animals Vice-President American Humane Association, and Director of American Social Science Association:

I have spoken of Glucose as a giant which has grown in a few years to colossal proportions.

I will now speak of what I may properly call its twin brother, Oleomargarine.

Few persons have any correct idea of the extent to which this article is now made in this country.

A single firm in New York City has recently contracted with parties in Vermont for 300,000 firkins, to be delivered this year, for packing oleomargarine butter.

It is estimated that there was made in this country last year about a hundred millions of pounds.

It is sold, as I am informed, in almost every butter stall in our great Faneuil Hall market, and large quantities of it are, as I am informed, shipped to Vermont, to come back as Vermont butter.

It is put up in beautiful forms, as well as in tubs and firkins, and cannot ordinarily be distinguished from the products of the milk from the cow.

It is not only filling our markets in the shape of butter, but also as cheese. Many creameries, any many large dairies, as I am informed, are now mixing twenty-five per cent. or more of oleomargarine oil with their cheese.

Are these commodities unwholesome?

Manufacturers will tell you they are even better than the products of the cow, and will show you a long list of certificates from their paid chemists to the same effect.

I have microscopic photographs which tell a different story, and the testimony of scientific men whom I believe.

The French Academy of Medicine have, as I am informed, recently reported that French oleomargarine is unfit for use in French hospitals.

The ground taken was, as I am informed, that while it might be possible to make in a chemist's laboratory a pure article which would not be unwholesome, in point of fact it was found by the Academy experts in Paris that only an inferior article was actually sold in commerce, which appeared to injure the digestive organs of sick and debilitated persons.

Mr. Michels, of New York City, a well-known microscopist, and editor of a scientific journal, testifies that oleomargarine is simply uncooked raw fat, never subjected to sufficient heat to kill the parasites which are liable to be in it, and those who eat it run the risk of trichinæ from the stomachs of animals which are chopped up with the fat in making it.

He states that he has found in it tissue and muscle, and cells of suspicious nature, and that Mr. Taylor has also found in it positively identified germs of disease. Mr. Michels further states that all the caul fat of oxen brought to New York City in a week would not supply one factory four days, yet there were seven factories in New York City, and he asserts that there can be no doubt that fats and and grease of various kinds are used in making oleomargarine.

The eminent English chemist, Prof. Church, states that he has found in it horse fat, fat from bones, and fats such as are ordinarily used for making candles. But the gentleman who probably more than any one else has written upon this subject is Dr. R. U. Piper, of Chicago, concerning whom the chief justice of the superior court of that city, and three other judges, certify that the testimony of no other scientific gentleman of that city would, in their judgment, be entitled to higher respect.

Dr. Piper says his attention was first called to the subject by an article published by Mr. Michels, before referred to, in the American Journal of Microscopy. Since then he has examined a large number of specimens.

He says that "while no true butter can carry tichinæ, eggs of the tape-worm, etc., he has found in oleomargarine not only organic substances in the form of muscular and connective tissue, and various fungi, but also living organisms which have resisted boiling acetic acid, and eggs resembling those of the tape-worm."

These he has preserved to be shown to any who desire to see them, and he has also microscopic photographs of them.

He thinks these may get in through the stomachs of pigs and sheep used in making the article, though he has found in it specimens of uncooked meat.

His conclusion is that it is a dangerous article, and that he would on no account allow its use in his family.

The Rev. E. Huber, microscopist of Richmond, Va, writes in the Southern Clinic, of May, 1880, that oleomargarine differs in its microscopical appearance as well as in its nutritive and dietetic qualities, from true butter, that the fats in it are not subjected to a heat sufficient to destroy the germs of septic and putrefactive organisms, and that there may also be introduced into the system by its means the eggs which develop in tape-worm.

And he also states that he has frequently found in oleomargarine, eggs resembling those of the tape-worm.

Mr. Michels says I have reason to believe that the refuse fat of at least one pork packing establishment is used for oleomargarine, and as the trade increases fat of every description will probably be offered for sale, even that from the carcasses of diseased animals.

Prof. Piper says that "it is not unreasonable to suppose that one of these populated stomachs chopped up with the fat, even though washed and cleaned, may contain thousands of living organisms."

In view of the great and increasing magnitude of this business, and the report of the French Academy of Medicine; and the discoveries of the scientific gentlemen before named, and the danger of using the raw fats and stomachs of diseased animals, and of those that die on the cars, which number hundreds of thousands annually, and of those that die of pleuro-pneumonia, or cattle fever, or hog cholera, I think we have no reason to rejoice over the erection of these enormous factories which are now supplying the tables of our hotels, restaurants, boarding-houses and private families with olemargarine butter and cheese.

One thing cannot be denied by the great capitalists engaged in this manufacture, viz: That not three men or women in a hundred would eat an ounce of these articles if they could know by color, or otherwise, what they were eating.

No man would want to give his wife or children, for butter, the raw, uncooked fats of mixed animals that have died of disease, and how manufacturers can in all cases guard the public against such fats is a problem beyond my comprehension.

One of the largest oleomargarine dealers in New York City has recently offered, as I am told, through the National Board of Trade, a thousand dollars for the three best essays on adulteration.

Possibly those essays mav explain to the public how they can safely eat oleomargarine.

"MILKMAIDS."

By Mrs. Frank Crosby, of Elgin.

Ik Marvel in his "Wet Days at Edgewood," spends the humid hours in his library. He pores over the vellum of antiquity, and finds that the Greeks and Romans knew quite as much about farming as authorities ranked competent in these days, and he cites passage after passage which reflects admirably their common sense in the management of everything pertaining to farm li e. He follows this bucolic vein down through the older French and English poets, till, among the charming metamorphoses which his reading effects, he tells us.

"Through the prism of their verse, Patrick, the cattle-tender, changes to a lithe milkmaid, against whose ankles the buttercups nod rejoicingly, and wakes all Arden with a rich burst of laughter."

This is the milkmaid of tradition, picturesque, songful and laughter-loving, whose praise coming down the centuries has reached us through the notes, "oaten stop or pastoral song."

She it is, whose meridian glory was, doubtless, in the seventeenth century, the day of castes, processions and pageants, whose customs and costumes we ape now on the stage, in tableaux, the carnival or the fancy ball.

She it is, whom Milton, of that period, mentioned in his "L'Allegro" in this connection:

"While the plowman near at hand,
Whistles over the furrowed land,
And the milkmaid singeth blithe,
And the mower whets his scythe."

She it is, whose voice was lost in the silence of Goldsmith's "Deserted Village," where in its prosperity, among many sweet sounds "at evening's close," one might have heard,

"The swain responsive as the milkmaid sung."

She is one the birds at their matins missed after the cruel "Sack of Baltimore."

"Midsummer morn, in woodland nigh, the birds begin to sing,
They see not now the milking maids, deserted in the spring."

Lines like the following portray her image:

"I see the pool, more clear by half
Than pools where other waters laugh
Up at the breasts of coot and rail.
There, as she passed it on her way,
I saw reflected yesterday
A maiden with a milk-pail.

"There, neither slowly nor in haste,—
One hand upon her slender waist,
The other lifted to her pail,—
She, rosy in the morning light,
Among the water-daisies white,
Like some fair sloop appeared to sail."

"Against her ankles as she trod
The lucky buttercups did nod."

Or these

"I met a maiden with shining locks,
Where milky kine were lowing."

"She wore a kerchief on her neck,
Her bare arm showed its dimple,
Her apron spread without a speck,
Her air was frank and simple."

"She milked into a wooden pail
And sang a country ditty."

* * * * * * *

And all the while she milked and milked
The grave cow heavy laden.
I've seen grand ladies plumed and silked,
But not a sweeter maiden."

"But not a sweeter, fresher maid,
Than this in homely cotton,
That pleasant face and silky braid
I have not yet forgotten."

What are the songs she sings? Here are bits from one by Sidney Dobell, which represents the course of her thought while the streams of milk beat time till the pail is brimming:

"Fill, fill,
Fill pail, fill,
For there by the stile stands Harry!
The world may go round,
The world may stand still,
But I can milk and marry,
Fill, pail,
I can milk and marry."

"Give down, give down,
My crumpled brown!
And send me to my Harry.
The folks o' towns
May have silken gowns,
But I can milk and marry.
Fill, pail,
I can milk and marry."

Rarely is anything crystal'zed in verse sweeter than this, which the old mother recalled as the last song of her "sonne's faire wife Elizabeth," which she heard echoed back from the shores of Lindis, as she sat spinning within her door:

"Cusha! Cusha! Cusha!" Calling,
"For the dews will soon be falling.
Leave your meadow grasses mellow,
Mellow, mellow.
Quit your cowslips, cowslips yellow!
Come uppe Whitefoot! Come uppe Lightfoot!
Quit the stalks of parley hollow,
Hollow, hollow.
Come up, Jetty, rise and follow;
From the clovers lift your head!
Come uppe Whitefoot! Come uppe Lightfoot!
Come up, Jetty! rise and follow
Zetty to the milking shed."

In adjusting ourselves to changed conditions, much is modified, and much is lost which has not a pecuniary value.

Since the steam era began, the romance of dairy-farming as well as of travel, has been taken away.

In old England, fast outgrowing her old-time sports and customs, the milkmaid has been one of the last to yield her place.

"A few years ago, in London, the only trace of the old custom of going a-Maying were the garlands of the milkmaids and the Jack-in-the-green of the sweeps. The garland (so called) was made of silver plate, borrowed for the day, and fastened upon a sort of pyramid.

Accompanying this droll garland were the maids themselves, in gay dress, with ribbons and flowers; and attended by musicians, who played for them to dance in the streets.

Sometimes a cow was dressed in festive array, with bouquets and ribbons on her horns, neck and tail, and over her back a net stuck full of flowers. Thus highly ornamented the meek creature was led through the streets.

A sad coming down, indeed, from the time when the milkmaid assisted at the festivities around the May-pole in her native village, when lords and ladies, as well as king and queen, laid aside their state to rear its leafy crown!

From what has been cited we may see that we can predicate of the representative milkmaid very enviable qualities.

She was frank, simple, comely, rosy-hued with health, graceful, tidy, contented, sweet-tempered and lively, industrious, honest, persevering, devoted to business, proud of her calling, tenacious of purpose, duly ambitious, all of which she could hardly have been had she been avaricious.

She has never been naturalized on American soil any more than have the skylark and the nightingale, nor is she the exact prototype of the dairywomen—the farmer's wife and daughters and the "hired help," (barring the foreign element) that till more recent times, sustained the credit of the dairy interest in this country.

Our dairy woman added a large intelligence to the good traits enumerated, and was more likely to be heard singing religious or patriotic songs daily, for her training led her to believe she owed an abiding loyalty to God and her country.

In "Webster's Spelling Book," the most important text-book of the fathers and grandfathers of the American people, there was a funny old picture of "The country milkmaid and her milk pail," which, once seen, could not be forgotten; and it would seem that these worthies did not drink in the truth of its moral. Oddly enough, it came between the picture and the story. It ran thus:

"When men suffer their imagination to amuse them with the distant and uncertain improvements of their condition, they frequently sustain real losses, by their inattention to those affairs in which they are immediately concerned."

After looking at the picture they probably skipped the moral to get to the story, and thought it meant that women should not think so much of fine things, and of going to town, and should not "count their chickens before they were hatched."

Perhaps the author began, "When men," etc., and put the moral first (such a very unusual thing!), in order that they might not fail to see that it applied particularly to them; but that they did not learn it or teach it to their sons and grandsons, recent events would warrant us in believing.

It is quite evident that this milkmaid lived when there were strong premonitions of a breaking-up in society—even in country society. She had not unalloyed satisfaction with her condition in life, as her English cousins seemed to have. She for a moment succumbed to an alleged weakness of her sex and allowed her mind to wander from her legitimate occupation to the whimsicalities of dress and its attendant temptations. She had even decided on the color of her prospective gown. She knew well enough that the other sex believe "fine feathers make fine birds," and that thereby they would be attracted, and she felt all the joy that comes of independence, and imagined how she would express proper scorn, and discard their attentions. How admirable it would have been considered, had she succeeded! But she felt her triumph too early; the record left her transfixed on that page—paralyzed by that one audacious toss of the head!

It never seems to have occurred to any one that she could or did "cry over spilled milk,"—and probably she did not, for people with such forethought as she manifested are not the ones to sit down and whine. It is more reasonable to suppose she picked up the pail, vowing mentally that she would give the lads and all thoughts of them the go-by for one while, and walked to the dairy-house a wiser if not a sadder woman. Very likely she sang somewhat louder than usual, and to one passing might have been only

"The clattering dairymaid immersed in steam,
Singing and scrubbing 'midst her milk and cream."

If she was the "hired girl" of a century ago, more or less, there is reason to think that she properly and honestly accounted to her employer for the deficiency in that day's quota of milk; and though it was deducted from her wages, she was too good a girl to be dismissed lightly, and knowing "which side her bread was buttered on," she did not walk off in a huff, but set to work to excel in her department of service.

She did all this, and more. When the men desired to "deacon" the calves, and "wouldn't be bothered with them, anyhow," she raised them by hand. She was particular about the "stripping" every time, and gave unexpected treats and cosset greetings to the cows, so that they favored her at milking time, and somehow she secured richer milk and more of it, more cream and yellower butter, than they did at other farms. The butter she made was more than "gilt-edged," it was golden.

When it came to make cheese she put just enough rennet in the milk, had delicious curds, turned the cheeses carefully in due time, knew the difference between a "full cream" and a "white oak" cheese, now and then made a "sage cheese," and became wise in all the cheese-paring economy of those days. Her cheese had a bouquet of its own, which could not be approximated by any attempt of imitators, and was known and sought from far and wide.

The farmer in whose employ she remained year after year drew out his wallet, weighed down with those shining coins irreverently called the "dollars of our daddies," so many of which her thrift had gathered there, told with satisfaction how much he was going to be able to lay up that year, and under the eaves of the sanctuary, or out by the horse-sheds, while he munched his doughnuts, of a Sunday noon, imparted confidentially his conjecture as to how much his dairy would bring him in. She, good, patient worker, found comfort in the reputation she had won as the best butter and cheese maker in the country. Now and then she turned an honest penny by being allowed a little of the poultry money for some extra attention to them, or by investing in some prolific ewe, whose twin progeny gave her, unexpectedly, large and fine fleeces; and savings of this sort were added to the original pile.

It is to be hoped that she met her fate and the fulfillment of her youthful imaginings, by being chosen by some good and great governor of the commonwealth for a life-partner, and that she left her somewhat menial but worthily distinguished position to shine as did Lady Wentworth, whose memory merited embalming in a poem by Longfellow.

It is more in accordance with the tenor of lives and events of that period, however, to suppose that when her employer's wife succumbed to the rigors of a New England climate and the overwork necessary to the spinning and weaving, making and patching of garments for a housefull of boys, and passed out of time by a sort of home consumption, the *major domo* took consolation in surveying his acres, bethought himself of the handsome sums he had so long been putting into the hired girl's purse, and his grief was turned into a new channel by estimating just how much she ought to have by this time, and he concluded it would be best to absorb them naturally and legally by marriage.

Whether this catastrophy occurred or not, whether she rode in her coach or even arrived at the dignity of a "one-hoss shay," it behooves us not to inquire.

It is not so much of the matron as the maid that we are thinking, and why may she not be the very one of whom Trowbridge wrote:

"Now to her task the milkmaid goes,
The cattle come crowding through the gate,
Lowing, pushing, little and great;
About the trough, by the farm-yard pump,
The frolicsome yearlings frisk and jump,
While the pleasant dews are falling;—
The new milk heifer is quick and shy,
But the old cow waits with tranquil eye,
And the white stream into the bright pail flows
When to her task the milkmaid goes,
Soothingly calling,
'So, boss! So, boss! So! So! So!'
The cheerful milkmaid takes her stool,
And sits and milks in the twilight cool,
Saying, 'So! So, boss, so! So! So!' "

Later:

"The household sinks to deep repose,
But still in sleep the farm-boy goes,
Singing, calling,—
'Co' boss! Co' boss! Co'! Co'! Co'!'
And oft the milkmaid in her dreams
Drums in the pail with the flashing streams,
Murmuring 'So, boss! So!'"

"Mute is the voice of the rural laborer, hushed the plough-boy's whistle and the milkmaid's song," for the occupant of the sulky plow never stops impelled to mourn the fate of a "wee modest crimson-tipped flower" to catch the wild melody that fills the woods adjoining the field, or to whistle as if his heart were too full of music to contain itself. Instead of the mower whetting his scythe, or the company of mowers swinging their scythes to the music of the falling swaths, perchance breaking the ranks out of sympathy with the piteous plaints of bereft mother-birds, or scattered by the furious buzz of molested bumble-bees, the driver of sleek horses moves monotonously and with mathematical precision around "meadows trim with daisies pied" to the discordant click and rattle of restless rasping blades, but too rapidly to note with ear or eye the fall in death of majestic grasses or of tearful and crowned beauties.

Instead of the milkmaid's song is heard the whoop af the big, bearded Hibernian, with a burr on his tongue and an oath hot on his lips, and no suggestion whatever of "incense breathing morn" or the sweet breath of kine, but rather the all-permeating perfume of the ancient but indispensable Dudheen.

Little wonder that some one thus voiced the incredulity of many with regard to the beauties of country life:

"They may talk of love in a cottage,
And bowers of trellised vine,
Of nature bewitchingly simple,
And milkmaids half divine."

"Your love in a cottage is hungry,
Your vine is a nest of flies,
Your milkmaid shocks the Graces,
And simplicity talks of pies."

The country becomes more and more a place of dearly-cheap summer resorts or market gardens worked by foreigners, from which those "to the manor born" rush to plunge into the seething mass of humanity in cities. The cities themselves seem most like a writhing mound of serpents, whence forked tongues are thrust to hiss and hiss, and glittering eyes peer to fascinate till closer and closer the victim is drawn in the folds of the charmer.

The city tries to prove that it can exist without the country by selling chalk and alum for bread, and for milk chalk, burnt sugar and water diluted with milk drawn from a slop-fed, sickly, terrified herd that has forgotten, if ever it knew of, green pastures.

"We have changed all that," as the French say, and let a Frenchman, one capable of making soup from cast-off kid gloves, claim and have the credit of discovering the way to make butter out of suet—oleomargerine—which opened the way for butterine, suine, and the namelessly nasty, much-manipulated, deodorized and delectably *awful* combinations, which are literally and indeed *offal*.

If woman has turned from rural avocations and domestic life to try her fortune as physician or lecturer, man has been allured from the platform to a coveted place next to the man-milliner and the man-dressmaker. This scientific man-milkmaid has not yet perfected a milking machine, but he bids fair to go down to posterity as famous as the alchemist over his crucible seeking the phiosopher's stone. All hail the man-milkmaid over his vats transmuting lard into butter!

Sometimes a huge joke is perpetrated in spite of everybody and anybody. Such was that of the monster cheese at the Paris Exposition in 1867.

The Swiss determined to send hither a wonderful specimen of Schweitzer-kase.

"So rosy milkmaids,
In caps and long braids,
Milked the boniest cows in the fields."

By no mischance was the plan defeated. A mammoth cheese was pressed, and turned and cured, and with the pomp of a royal progress it was ushered into Paris and throned at the Exposition. Of course it took the prize, and the worthy burghers, wishing to recognize the compliment, voted to make the cheese a gift to the poor of Paris, and to show proper gratitude for such munificence, four commissioners are appointed to thank the Swiss in behalf of the poor, which they do with speech and toast and appropriate ceremonies. Eight Normandy horses wait, and the porters are ready to push their utmost in order to get his Majesty forward a little space, when, "One! Two! Three! Ready!" and down they all go sprawling, for the royal cheese has ignominiously collapsed. The rats, the underground poor of Paris, have taken their share first, having stealthily entered from below through a hole in the platform.

"Now nothing but just,
A crushed-in crust,
A cart-load of scraps and a pungent dust,"

remains of the great Gruyere, to the vast chagrin of the Swiss and the officials who stood around sneezing and astonished, and to the vast merriment of all the world besides.

Sometimes, again, it happens that a joke is perpetrated by somebody in spite of somebodys, and at the expense of both.

To illustrate: Once upon a time, when the world grew hungrier and hungrier for the dainties of the dairy, which lingered in many a man's memory as "such butter and cheese as mother used to make down at the old farm," the great northwest rose up, and, casting a glance at its ample grazing lands, and impressing the man-milkmaid into its service, said, "Go to, now, let us give this great world, hungry and always crying for more, a taste of cheese such as mother and the milkmaids of the past never had a hand in."

With his science and steam apparatus, up stepped the brave man-milkmaid, to whom a pig in the pen might be bonnier than any cow in the field, and who by accident of birth was expected to know more about making butter and cheese than the buxom milkmaid of by-gone days, notwithstanding all her inherited skill and years of practical experience, and he said, "Presto! it shall be done." Then the cheeses, fairly good cheeses, began to roll out of the factories, "like shot off a shovel," and the hungry world said, "At least there will now be enough."

The great northwest took pride in the butter and cheese it was furnishing, and built up in its great enclosure a towering reputation, at which the little cheeses, Holland, Rachefort, Parmesan, Neuf Chatel, Limburger, Stilton, Cheshire, Cheddar, Western Reserve, New York cheese, and queer nameless cheeses fell down as if at worship, and all the nations stared at the wonder. The great ships were waiting to carry off the immense cargoes of butter and cheese to the hungry world, when all at once the hungry world pressed its hand to its heart, or near it, and shrieking with pain, gasped out that it had had enough. The great northwest gathered its officials, and together they walked about the tower, talking and getting ready to inspect matters and to investigate and ventilate things most thoroughly, when suddenly the tower toppled and they were anxious to get from under.

They expected to be incontinently crushed, but it vanished in a puff, for the material with which it had been built, firmer than oak staves, and supposed to be "as solid as old cheese," had been nearly eaten through by "anti-huff," which had been surreptitiously infused into the cheese. The great northwest and its officials would have been glad if the rats had feasted on it, as they did on the king cheese at the Paris Exposition, for it might have been death to myraids of them, instead of ruin to their magnificent pet enterprise. While "they mused the fire burned," the butter meanwhile having become frightened ran off like a centipede to look at itself as revealed in the microscope. The great northwest and its officials now stood aghast and called its multitudinous man-milkmaid to account, decreeing that something must be branded with large letters F-R-A-U-D, and what more would come of it no one could tell, but the nations sat around grinning like so many Chessie cats, and the hungry world opened its mouth the wider and bawled the louder.

Was this the picture in Apocalypse that sealed the eyelids of the "dreaming Iolanthe,' done in butter at the Centennial? Perhaps, but there are those who will not accept the vision. Over different lands are scattered those who sigh for a freehold, the joy of a homestead and one look more at

"The cot of my father, the dairy-house nigh it,
And e'en the rude bucket which hung in the well"—

They long to see again

"Landscapes green and cool,
Sleek cattle standing in shadow and pool."

The spring, the spring-house, "pails brightly scoured and delicately sweet," and even that "friendly tripod," the milking stool.

To them it would be music again to hear "the pasture bars that clattered as they fell," and the heavy plaint of the old-fashioned churn, "Cachug! Cachug!" groaning under its heavy burden of cream

These dream of such surroundings as would make possible once more the

"The bowl of cream uncrudded,"
Such "festal dainties spread
Like my bowl of milk and bread,"

Or a picture like this reproduced in fact:

"She brought us in a beechen bowl
Sweet milk that smacked of mountain thyme,
Oat cake and such a yellow roll
Of butter—it gilds all my rhyme

They hold the mildmaid of yore in fragrant memory and utter in benediction,

"Fair shine the blue that o'er her spreads,
Green be the pastures where she treads,
The maiden with a milking-pail."

Topic No. 6 was then taken up, "What legislation, if any, is necessary to prevent the adulteration of articles of food?"

Mr. President, Ladies and Gentlemen: Relying upon the gentlemen who have been assigned to this topic, I have made no preparation for it, and must therefore rely upon making an extemporaneous speech if I make any. The question assumes that food articles are adulterated, and that these adulterations can be prevented by legislative enactments, but the great trouble is to enforce the laws we have upon our statute books. That nearly all articles of food are adulterated is not questioned, and that some, if not all of these adulterations are harmful is not denied by the best informed physicians of the and. People will and do adulterate food for the sake of gain, regardless of what the results on human life may be, and some measures, the surer the better, if the law be enforced, should be provided, whereby life may not be jeopardized by what we eat. Really, sir, it is mighty dangerous to live in these days of anti-huff and lard in cheese; with the rotten fats from which oleomargarine is made; *sow*ine, which is mixed in butter; terra alba in sugar; talc in flour, and so on to the end of the list of all the articles of food which we daily consume. A day or two ago I picked up a Chicago paper, in which I found an excellent article on "Our Food and Drink," by Dr. O. W. Wight, of Milwaukee, from which, with the permission of the association, I will read a few extracts:

Dangerous Adulterations—Lead in canned vegetables and meat; corrosive sublimate in the rind of cheese (used to destroy "skippers"); poisonous colors (such as arsenite of copper and chromate of lead) in candy or confectionery, or caustic lime in lard; analine color in fruit jellies, preserves, sausage and wine; salts of tin in sugar; coculus indicus and tobacco in beer and ale; salts of copper in pickles; and food and drink in this country which are even dangerous to life. Their use should be prohibited under severe penalties.

Deleterious Adulterations—All the adulterations mentioned above, even when in too small quantities to be dangerous, are also deleterious and injurious to health. Alum in bread and baking powder; copper in butter; artificial essences in candy and confectionery; oxide of iron in cocoa and chocolate; alum in flour; red lead in cayenne pepper; spirits of turpentine in gin; chromate of lead in mustard; water in milk (depriving infants of nutrition); crude brandy and "platridge" in wine; red ferruginous earths in annatto; red lead in currie powder; sulphuric acid in glucose sirups; lead in cider; Prussian blue-black lead, and salts of copper in tea; sulphuric acid, alum, aloes and picric acid in beer; and some other deleterious adulterations of the food and drink of man, are met with in this country more or less frequently. It is an impossibility to measure the amount of injury thereby caused to the public health. Doubtless, some of them turn the scales of life and death against delicate infants and invalids, which fact might be a sufficient reason for transferring them to the list of dangerous.

Fraudulent Adulterations—The object of dangerous and deleterious adulteration is gain, and they may therefore be reckoned among the fraudulent. Sago, tapioca, potato, and other feculia in arrowroot; soap, sulphate of lime, and all sorts of starch in annatto; mustard husks in alspice; water, burnt sugar, etc., in brandy; potatoes, inferior flour, etc., in bread; lard, tallow, water, starch and oleomargarine in butter; vermilion, venetian red, ground rice and tumeric in cayenne; excess of water in canned vegetables and meats; annatto, other coloring matters, oleomargarine and "vacuity of cream" in cheese; glucose in candy and confectionery; corn starch, sago, tapioca, animal matter, and cheaper kinds of arrowroot in cocoa and chocolate; chicory, burnt sugar and roasted peas in coffee; ground rice in currie powder; salt and sugar in gelatine; tumeric, cayenne and mustard in ground ginger; flour; glucose and cane sugar in honey; gelatine in isinglass; starch, stearine, salt and potato in lard; flour, tumeric, cayenne and yellow lakes in mustard; turnip in horse-radish; apples, pumpkins and molasses in preserves; linseed meal, different flours, ship-bread and mustard husks in pepper; potato starch in sago; water, cayenne, burnt sugar, etc., in rum; rice flour, sand and glucose in sugar; molasses, cochineal, armenian bowl, and other coloring matters in various sauces; flour and starch in spices; sand, magnetic oxide of iron, spent leaves, and foreign leaves in tea; arrowroot and clove stalks in cloves; ship bread in pimento; spent bark in cinnamon; water and burnt sugar in vinegar; molasses, water and salt in porter and stout; glycerine in beer; and things innumerable in liquors and wines, are adulterations that touch the economy of every household, if they do not bring a visitation of the doctor, and involve the services of an undertaker.

The Effect of these Adulterations on Health and Trade.

On Health—From dangerous adulterations a few die. Deleterious adulterations cause or intensify the ill-health of many. It is not necessary to translate in popular language long chapters from the National Pharmacopæia, from a treatise on materia medica and therapeutics, from a standing work on toxicology, or from an authoritative system of medicine, in a vain attempt to estimate, even approximately, the number of deaths and the amount of sickness caused by adulterations of food and drink. The articles used in adulteration are known, and the effects of such articles when taken into the human body are known. Other essential factors, quantity employed, percentage of admixture, chemical modifications by culinary processes, habits of individuals, etc., are unknown, and conclusive generalizations become impossible. Speculation in the midst of such chaos tends, on the one hand, to sensational exaggeration, and on the other hand, to belittle a real public danger. Here, as elsewhere, the true scientist awaits facts, and avoids alike the creation of a public panic or the infusion of a false sense of public security.

On Trade—It is not necessary that mankind should eat and drink things dangerous to life and injurious to health that trade may flourish. In fact, trade flourishes best under a policy of honesty. Tradesmen and the community are mutually responsible for the evils of adulteration. The people generally ask for cheap and attractive goods. The supply adapts itself with measureless cunning to the demand. One more unscrupulous than the rest attracts customers by colors that do not reveal to ignorance the poisons lurking within. Others must follow his example or retire from the field. A daring dealer imitates the flavor of a genuine article by a cheaper mixture, and his neighbors must follow suit,

although they may know they are scattering the seeds of sickness among the unconscious. The greater part of mankind find the struggle to obtain the necessaries of life so hard that any apparent opportunity to economize is eagerly seized. Purveyers of food and drink compete with each other, not only by reduction of profit, but by cheapening quality. He who reduces quality most in reality, and least in appearance, can win in the great battle of the "survival of the fittest." Human ingenuity is taxed to the utmost; the whole earth is explored to obtain and put to use the means of success. Men have come to look upon fraudulent adulteration as commendable enterprise. Injurious adulteration is winked at by most. Necessity of trade is pleaded as an excuse for dangerous adulteration, even when its prevalence is deplored. The mutual concealments and deceptions of producers and consumers tend to educate the public in dishonest ways. The heart of man is hardened towards his neighbor whom he cheats, and the conscience is deadened when gain is secured at the expense of another's health or life. As the world's commerce would not be diminished by cessation of adulteration, it is very evident that the net residue of the practice is to corrupt and deprave trade, without increasing its profits. Much the greater portion of the manufacturers and merchants of food and drink would prefer to make and handle genuine goods, if they were not driven to an opposite course by the unscrupulousness of a few. When people learn that a dollar's worth of a pure article is more valuable than three-fourths of the same quantity when mixed with ever so much useless, injurious or dangerous foreign material, when dishonest producers are restrained by the strong hand of well-administered and just law, then we may expect to see trade become the minister of something better than material civilization. Reputation for integrity is even now of equal value with capital in trade; and the nation that first establishes a character for honest goods will reap a rich harvest of profit in the world's commerce.

After such testimony, it appears to me that no one will deny that something should be done by our State and General Government to protect the lives of our people from the sharks who are bent on murdering us by piece-meal with what ought to be palatable food. Our own State, as I find by the statute, has given us a wholesome law in regard to the adulteration of butter and cheese; but we need some way of enforcing it, and we need a more sweeping law in relation to all food adulteration, with a provision that will send every man convicted of this nefarious business to State's prison for life.

FRANK CROSBY'S SPEECH.

Mr. Crosby, of Elgin, was called, and spoke as follows:

Legislation, if by that was meant the enactment of new laws, was unnecessary in this matter of food adulteration, for the reason that we had not tried the laws already upon our statute book. A law for such a purpose was, in his judgment, not worth the paper it was printed upon, unless it was backed by public opinion. The statutes already upon the books were good enough; he did not see how they could be better worded. If these laws are enforced, then we have enough; if they are not enforced, we would better not ask for more. Unless you get public sentiment back of your existing laws, it is absurd to talk of further legislation.

You may just as well make up your mind first as last that you can't legislate honesty into butter and cheese makers, nor wisdom into consumers of these articles.

There was a time when we could get, in this country, good orthodox cheese, but now you could not get such cheese for love nor money. Once in a while he went into a grocery and found cheese that he could eat, but it was invariably some that had been discarded by everybody else. The fact is, the cheese of to-day is made to suit the people. The cheese makers are not all dishonest men, and rogues; they are fully up to the standard of the people around them. People now prefer skim cheese to full creams. If we are going to effect any reform in this matter, let us go back to first principles and devise new stomachs for the people of this country.

Further laws now enacted would have about the same effect upon the business as the game laws have upon the shooting of game out of season.

What I wish to get at is this: Until you get the sentiment of the community up to where it will enforce the laws, your fault-finding and grumbling will avail little. I say this with all due respect to the Illinois State Dairymen's Association.

This matter of adulteration in butter and cheese is but a small part of that being carried on in different articles of food. How many persons are there who can remember how old-fashioned sweet wheat bread tasted before this patent-process flour, an indigestible stuff, became common; and, in fact, in the list just read, there is scarcely an article of food but what is being adulterated. I don't know how we are going to get around using it, unless we give up eating entirely.

In order to enforce these laws, or any kind of laws, it is necessary to organize and work together in the matter; and don't forget, while working, that there are people in the community who eat something besides butter and cheese. I would suggest, if you intend going at this thing in earnest, that you raise $10,000 to get the work going, then $10,000 more to keep it going, and so on until $100,000 is expended, and by that time you will know as an association whether it is profitable to prevent adulteration by law.

Adjourned to Thursday, A. M., 9 o'clock.

Thursday morning, convention called to order by Dr. Tefft, at 9:30.

On motion it was decided to appoint a committee on nominations. The president named S. W. Kingsley, C. C. Buell and Calvin Gilbert as such committee.

C. H. Larkin suggested that a committee be appointed to draft resolutions expressing the feelings of the association regarding the late John Keating, a deceased member of the body.

C. C. Buell, R. P. McGlincy and S. W. Kingsley were chosen by the chair to draft the resolutions.

Topic No. 5, "How may manure be most profitably and economically disposed of?" was then taken up.

Ahira Thompson: There are various ways in which farmers dispose of the manure from their yards and stables. An experience covering a number of years had taught him that the proper way was to commence drawing the manure out to his fields as soon as it began to accumulate in the fall. He had seen many of his neighbors who did not do this way, and some of them were strongly opposed to it. This plan not only saved a second handling of the manure, but it gave the land a chance to get all there was in it. One of his neighbors told him when he commenced on this plan, that he would surely spoil his land by applying green manure. The next year he took this neighbor out to his fields and showed him the fine condition of his crops, and convinced the man that manure applied fresh was worth at least ten per cent. more than that which had stood in the yard all winter. The land where he put this fresh manure produced large corn-stalks and more corn than before. There were many wrong impressions, he believed, concerning the value of manure. He knew men who claimed to be, and were honest in their business dealings, who would take crop after crop from their lands and never repay or replenish them with even a rest. These same fields, if manured a few times would double their products. He believed it possible to manure corn land so that it would produce all stalk and no corn, but a right quantity spread will more than double the amount taken off. He generally applied to loads of manure, yearly, to each acre of grain land; this he had found to be enough.

Clark: A man of his acquaintance had for a number of years manured a forty-acre piece of land by plowing grain under when green, and found it profitable.

W. W. Bingham: Had tried plowing under green rye, and found that it put his corn back. He thought that the second year after plowing in corn would do well.

C. H. Larkin: This question of the profitable disposition of manure, like all other questions, involves the question of the cost of labor. You must judge of the profit of it only as compared with the cost of the labor required in disposing of it in a certain way.

He had desired to top dress a piece of meadow land and had put on the manure in the most convenient manner from a wagon. Right here he would digress a little and ask some one to suggest a good plan for a dairy barn. The way a barn was built had a good deal to do with the quantity and quality of the manure as well as with the manner of handling it. His experience was that manure drawn from barn fresh and applied was in all respects the best. And unless the soil is of a leechy quality there is nothing lost by putting it on fresh, for all kinds of grain. You can get a good crop of oats or corn from it the second year if you do not the first. Some farmers are at present trying the experiment of sowing clover and rye together and plowing them under to obviate the necessity of drawing out manure. They use from two to four quarts of clover seed with the rye, and after these have been plowed under the ground is again seeded down. He had been trying this but did not know yet whether it is a success. In all his experience he had never got land too rich.

He always sows oats the first year sod is broken, and he never failed to get a good crop. He thought we had an almost unlimited amount of wealth in our soils.

Use clover as suggested. If used for manure under the right conditions it added wonderful richness to soil.

He didn't take much stock in this idea of rest for soil. It needed development more than rest. His idea of rest was rotation in crops. Land is better when it is constantly producing something. He had tried salt on his land, but not enough to be able to advise in the matter. He thought, however, that all applications of that kind acted simply as stimulants. The barn question was an important one in considering the disposition of manure. He would like to know if any of his hearers had ever used a manure cellar in his barn. He was well aware of the fact that if we saved liquid part of manure we saved a great deal. He had lately been saving this soft manure. He believed that these cellars to catch liquid manure were apt to be dangerous on account of poor ventilation. If there was an arrangement whereby this liquid manure could be drawn off to the fields with the solid matter pou would save a great deal of that offensive barn-yard smell and would save the best part of it.

The matter of sub-soiling was intimately connected with manuring. He had had some experience in sub-soiling. To carry it on profitably needed brains. He had noticed that some soils were almost ruined by sub-soiling, and others were improved.

Calvin Gilbert: Had attended meetings of this association for years, and had heard this question of the disposition of manures discussed from time immemorial; but he had seen that men would hold to their opinions; no matter how things were discussed, they would not learn anything. He thought he knew something about manures though he had retired from farming life, and would like to tell the dairymen something he knew by experience. About this question of manure, he supposed Thompson knew more than he, however he didn't take much stock in any of these scientific farmers who knew everything about farming but the practical part of it. Greeley knew a good deal about theoretical farming, but little about the practical part of it. All who had spoken on the subject favored top dressing, but he would not thus use manure under any circumstances. In spreading it the best part of it evaporates and you lose that, but if you plow it in as fast as drawn out you save all the valuable qualities, and you can, by doing this, make the poorest land rich. We should alternate crops and we would notice very favorable results.

His neighbor saved all of his liquid manure by having trenches made behind his animals.

Lawrence: After 44 years of experience as a farmer he had come to the conclusion that the sooner he got manure onto the land the better results he would have. Leave it in the barn-yard and you lose the best of it. If you draw it out in the winter, the rain that would waste it in the barn yard will wash the substance of it into the soil. He had a neighbor who was a very ignorant man so far as books were concerned, but who knew how to make money: He made his money by raising grain, cattle and hogs. In the month of June, as soon as he was through planting his corn, this man hauled out all his

extra straw and spread it on his pasture. After the June rains came the grass soon made its appearance above the straw, and in August he always had splendid pastures when other farmers were suffering from drouth.

He (Lawrence) used clover a great deal in manuring; kept some sowed every season. One crop of clover plowed in would enrich the land much more than we imagined.

C. C. Buell: Was much interested in the question of handling manures. His idea was that we should draw out and spread manure daily. In summer he did not draw any out from his yard unless it was being wasted by heavy rains. He liked the idea of saving fodder in Silos.

He finds a wide-tired wagon a great convenience; one of these old-fashioned low ones. With one of these you can draw out manure when the ground is breaking up in the spring, when you can't use any other wagon. He didn't believe that much of the valuable part of manure evaporated by being exposed to the air. He spreads his so that it plows under easily.

Description of his Cow Stable.

Frame building, 42x56. Three sides of it were of wood and the other of stone. His tying posts, instead of being lengthwise of the building, were put in short rows across it. He liked these short rows because the cows could find their places more easily. He has on each side four double-sash windows, for he believes in having a light barn. Has eight large doors for entering the barn. These can be fastened on the inside by buttons, or left open, as required. He can drive through if he wishes. Has an under drain running the entire length of the building which opens at his horse manure pile. In this way he saves all of the liquid manure. He has a platform for the cattle to stand on, so that none of the liquid ever stands in the barn. In the morning when he goes in he finds his stables very dry and everything clean. He can go to milking at once with his Sunday boots on and never have them soiled. The liquid all flows into this sub-earth drain. This drain is an inexpensive affair.

The upper part of his barn he uses for a carriage and warehouse. The barn, complete, did not cost more than $1,500.

Patrick: (Digression.) Thought there was no branch of farming so neglected as the care of pastures. He believed that the average pastures of this country could be doubled in value by a little attention. We keep our cattle on the same pastures all spring and summer, and when August comes with its drouth we are out of feed. Every farmer should have several acres of rye green in August, that cows may have plenty to eat all the time. He had seen an acre of ground so well manured that 1,500 pounds of hay were taken from a lot containing one acre, which had kept one cow all season.

Geo. Sands: Said he was stubborn enough to argue that top dressing paid. He had tried it enough so that he could safely hold to his own opinions in this matter of manuring land. He used only top dressing, and would say that if any gentleman thought top dressing would not do for all grains and grasses, he could prove him wrong very quickly. He gets his manure out in the fall and spring, and has tested it in many ways.

C. C. Buell: Was in favor of sufficient tillage, and would like some experiments in this matter tried.

R. M. Patrick thought the speakers were wandering from the subject. His idea on this question was to get out manure to the fields as soon as possible. He thought this the only sensible way to dispose of manure. The most of it would, of course, have to be spread on the fields in winter. He considered the labor question an important factor in the economy of farming. Getting out manure in the spring was inconvenient and hard on teams, so that the winter was the best time by all odds to draw out.

Clark: Considered broad-tired wagons very useful for hauling manure in spring. Every farmer should have one of them.

At this point T. McD. Richards was seen in the audience, and was called upon to read his paper on topic 5, "How may manure be most profitably and economically disposed of?"

THOMAS M'D. RICHARDS, WOODSTOCK, ILL.

Mr. President and Members of the Illinois State Dairymen's Association:

The practice of manufacturing soils is as old as civilization. The Greeks fertilized their fields for a thousand years previous to the christian era. The Romans in their purest days highly cultivated and manured their small farms; indeed, agriculture for a considerable period was their chief pride and passport to distinction. And so along down the centuries as civilization and population have increased, better culture of the soil, and greater care and economy in the saving and application of manures have followed almost as a matter of necessity. Should the densely populated nations of the world entirely neglect the application of manures for only a short period of years, starvation would be the dire result, hence the older nations ransack battlefields and the islands of the sea for materials to enrich their farms. The subject before us then is an important one, for not even our comparatively virgin soils can long endure the neglect that many farms have been and still are subjected to. A frequent rotation of crops, with the application of all the manure possible to make and save on the farm, either on or near the surface, is a safe practice, that will hand our farms down to coming generations in a fertile condition. I hold that no man has a right to live, who continually impoverishes his soil to the detriment of posterity. I have indicated that manure can (most profitably) in my view be applied at or near the surface, and (economically) I would as a rule say spread as you have, green manure on corn or grain fields; I would plow under shallow for convenience in putting in crops. If I did not plow under, in the fall would spread on the surface instead of dotting the field with little heaps, always a nuisance if you wish to plow in early spring. On meadows I would apply any kind of barn-yard manure, green or otherwise, soon after haying, if possible, or all along the fall and winter, being careful to spread evenly, and also rake the hay crop without the admixture of strawy manure, and to do this no rake

equals the old revolving wooden rake. Meadows top dressed with barn-yard manure once in three years, may be permanently kept in grass and will generally furnish large crops of hay. As a general rule, however, I would recommend plowing all suitable lands for grain tillage often, to avoid the increase of our different worm enemies that so often injure our corn crop, when long seeded meadows are plowed up. A top dressed meadow often plowed is in prime condition for corn, grain, vine or root crops, and as an item of "profit" and "economy," a portion at least of our manures may wisely be spread on our grass fields. Well tile-drained soils are in the best possible condition to be benefited by manure: in fact, tile drainage alone makes most soils fertile. A large share of the food of growing crops comes from the atmosphere, and tile drained lands allow the atmosphere to penetrate all through the soil, warming and disintegrating as well as removing surplus moisture, hence manure on such lands is easily assimilated with the soil and in the best condition for plant food. Dairymen of Illinois, though your business is arduous and confining, you have the consolation of knowing that you are improving and enriching your farms instead of impoverishing them, as was the practice of earlier days. I hope and trust also that you are improving your minds, as well as your farms, for no human being is worthy the name of man, who voluntarily makes of life only a perpetual round of drudgery. Labor is the foundation of all that is great and good in all ages and in all lands. Without labor, no civilized nations can long endure. And although labor is man's highest boon when intelligently applied, it may easily become man's fatal foe by over use and unwise practice. Pause, fellow farmer, in your ceaseless rounds of toil, think more, read more, plan more, make not of yourselves, men, beasts of burden, but intelligent men and women, with intelligent families growing up around you. Illinois is a great State in every sense already, and yet she is only partially settled and tilled. When the whole area becomes properly cultivated and manured, as some older countries already are, Illinois can support as many millions as the United States now contain. One other thought presses itself for the consideration of every intelligent producer. It is not enough that our farms are highly cultivated and enriched, if, when all is done, a few railroad lords continue to exercise the power to fleece us at their will. Now, the larger our crops, the more unmercifully are we treated by these magnates, who already almost wield the destinies of this country, controlling legislation and frequently elections at their will. The question is before the American people, and intelligence and concert of action can only secure our just rights. The country needs less railroad millionaires and more intelligent, independent farmers.

S. Patrick said he would like to return to Topic No. 4, for a little while, as he had been making some experiments of interest bearing upon that topic: He had found that the cost of producing winter milk was simply the cost of grain fed. Sixteen pounds of corn and oats per day mixed equally in bulk, fed to a cow producing on an average of 22¼ pounds of milk per day, would bring the cost of milk up to 55½ cents per hundred pounds. The hay fed he considered simply offset the grass in summer. He didn't feed all cows alike. He fed them according to the amount of milk they gave. He considered that his winter cows would keep up their average of milk until grass came.

Cohoon: Woulk like to know which was the more valuable, coarse or finely ground food.

Patrick: Thought finely ground best.

Buell: Said he would like to express himself in favor of small milkers that would make one pound of butter to every fifteen pounds of milk. A cow that would make such milk deserved just as much attention as the one which gave milk requiring twenty-five pounds to make a pound of butter. The Kane county dairymen preferred the cow that gave a large quantity, no matter what the quality, but this ought not to be.

Adjourned until 1:30 P. M.

AFTERNOON—THURSDAY.

Convention was called to order by the President at 2:15 P. M., and the discussion of topic No. 6 was resumed.

G. P. Lord was called upon, and after a few words, introduced Hon. E. C. Lovell, who spoke at length upon the legislative question.

He said he understood that he was to be called later in the discussion, consequently was hardly prepared to take up the question at this point. He heard it suggested by a member of the association that it might be that the legislation needed would have to come through National government rather than State, and he believed that there was just where we would have to look for aid in this matter. It has become an open secret that all the necessaries of life are being adulterated. An ordinary observer can see what is being done in the way of adulterating food, but we do not know how far it is being carried only as we are informed by the scientific observer. Most of us have but little time to look into this matter, and we are left to rely upon the honor and integrity of those from whom we buy and the laws of the country. Now the question comes right home to us here in connection with this question: If we can't depend upon the honor of those with whom we deal, what dependence can be placed upon the laws? He was not one of those who take such a dark view of human nature; believed the average man will not generally and as a rule do that which he knows will, if found out, destroy the confidence placed in him by those with whom he deals. Our danger comes from those with whom we have nothing to do. We should insist upon it that we have some protection from those that don't care about us, or have no reputation to make out of us. It is to guard us from the unseen enemy, and it seems to me that upon the National government we must depend for safety. Our inter-state relations are such that it would be impossible to get at this subject by laws of our State. Any person who knows anything about our laws knows that we sometimes find ourselves in a bad fix on account of these inter-state relations. In the matter of syrup adulterations, you see how hard they are to get at. They are

refined in New York, wholesaled in Philadelphia and retailed in Illinois. Our State laws do not cover the ground. We should ask the National government to take hold of it, and do something more than has been done. There is no doubt that in regard to the manufacture of articles in the State, State laws can be made useful.

He believed the dairymen should push this matter this winter. Something has been done by our own legislature, as this bill shows (reading the statute bearing upon adulteration of butter and cheese). This law, if enforced, and a proper punishment meted out to violators, would, he believed, prevent anything from being sold without being branded with its true name. He had heard it said that there was already too much legislation on the subject. Some matters have too much, but no one would presume to say that the enforcement of this statute would not be beneficial to the health of the country.

The following resolution was offered by W. W. Corbett, of the Farmers' Review, and adopted:

Resolved, That this association regard with satisfaction the movement now being made by the Chicago Produce Exchange for the enforcement of the laws of Illinois concerning the manufacture and sale of adulterated articles of food, and that we hereby tender to said Produce Exchange our hearty support and coöperation.

S. K. Bartholomew: Had hoped to hear this topic discussed by men of more experience and of a greater scientific knowledge of the thing than he had. Dairymen are full of whims concerning this feeding question. He had noticed that between dairymen and their cows there was a striking similarity—both were stubborn and both were greedy animals. A cow is never satisfied with her food, and if you give her a chance she will kill herself, and a man will do the same thing if you give him a loose rope.

The question is, what shall we feed our dairy cows? We are limited as to the amount of foreign food used, but we must have a certain amount of coarse food, such as straw, hay, etc. Neither one of these articles contains the qualities for milk to any great extent. Though wheat bran was one of the best milk feeds known, after this comes oats and corn. The question is, in what proportion should these be fed? He believed it was generally considered that the grinding of grain was a benefit so far as it is used as an article of milk food. Grinding puts grain in a condition to digest well. Every man suits himself as to his manner and time of feeding. Every man feeds for profit, and believes he is feeding in the most profitable way.

He fed a mixture of bran, corn meal and linseed meal; the last he preferred to oat meal. There is no rule I can lay down here for feeding I can only say that I think the best milker should receive the most feed. He was feeding at present about twelve pounds of meal per day—six pounds bran, four pounds corn meal and two pounds linseed meal. This mixture produced good results, as his cows averaged 25 pounds per day. He could produce 100 pounds of milk in winter for from 36 to 40 cents. His meal he fed in two messes. He let his cows remain out of the barn all day when the weather was not too cold. He fed on an average about 15 pounds of hay to each cow. The way he figured it, each cow's feed cost 9 cents per day and her milk was worth 35 cents per day, so that each cow cleared him $70 per year. He quit feeding oats because they were too high.

McLean: Said he was glad to learn the secret of making money in the dairy business, nevertheless he thought it poor policy to be telling these secrets; everybody will get them, then the profit is gone. But he could tell a better thing than Bartholomew. At Elgin they fed their cows sweet corn, costing them not more than 12 cents per day for each cow. This was cheaper than Bartholomew could steal the bran and draw it home. This idea of feeding bran he didn't like. It didn't make good milk, but sweet corn increased the flow and improved the quality of milk. His farm contained 100 acres, and he kept on there 40 head of stock. (He objected to telling how wealthy he was, but supposed it was necessary in this case.) He raises about 15 acres of sweet corn, sells the corn and feeds the stalks and nubbins to his stock.

C. H. Larkin: (Called upon) said he commenced feeding sweet corn stalks to his cattle in the summer. His stock is put on the pasture about the first of May, and for some time after that they are not fed anything. In the summer he fed a very little bran, just enough to get his cows to go into the barn. Later in the summer he feeds a little cut corn which he sows for this purpose, and then, after furnishing the packing company with his sweet corn, he begins feeding stalks and what there may be on them, until winter comes. In the latter part of the fall he often uses some other feed. These corn stalks, however, have often on them enough small ears to answer the place of other grain. He raised less hay each year. The place of hay was being supplied by corn stalks. He sowed considerable Hungarian each year, and likes it as a fodder. At the present time is feeding field corn stalks instead of sweet corn. Uses it with cut straw, which makes a good combination.

Sometimes fed for grain feed, equal parts in bulk of ground corn and oats. Put this grain feed in front of cattle, between the mangers; it makes a good storeroom, and the feed is always convenient. His grain feed he always got in while the roads were good.

Cohoon: Had found it very difficult to save seed from his sweet corn.

Lawrence: Had never had any trouble keeping his. He picked it when ripe and hung out of doors to cure, and never put it near the fire.

Larkin: He had tested sweet corn a number of times, to see if fire heat would destroy the germs. He had even dried it in the oven, and got it so hot that it was colored, —yet it grew all right when planted in the spring. He planted his corn with a planter or drill.

Cohoon: Planted it with drill; about as thick again for fodder as for husking purposes.

Topic No. 8 was then taken up, and R. M. Patrick read the following paper upon the subject:

R. M. PATRICK'S PAPER.

"Does the future prosperity of the dairyman demand that the factorymen skim less, and make a uniformly better article of cheese?"

During a little more than two months, and this during a time of universal activity and business prosperity, we have witnessed a decline in the price of skim cheese from 12 cents to about 7½ cents, being fully 4½ cents per pound on the average make. Had there been a great accumulation of cheese in this country and Europe, at this time, or had business throughout the country been prostrated, then either or both of these causes might have naturally produced this decline. But as there was no great accumulation of cheese, either in foreign or home markets, and business in our own country unusually active and prosperous, we must then look for some other cause for this great decline in the price of skim cheese and the demand for them.

During the year 1880 almost 350,000,000 pounds of cheese was made in the United States, or seven pounds each for the 50,000,000 of people in the United States. 125,000,000 pounds of cheese was exported, leaving for actual consumption four and one-half pounds for each inhabitant of the United States. One pound of good full-milk cheese, worth 12½ cents per pound, is said to be worth as much as two pounds of beef costing 20 to 25 cents; yet only four and one-half pounds of cheese is used by each inhabitant in the United States during the year, while twenty-five to forty pounds of beef is consumed by each inhabitant during the same time.

From the best information at hand, it is evident that the consumption of cheese in our country does not increase with the population. In many of our cheese-making districts, the farmers who produce the milk from which the cheese and butter is made are much of the time without butter and cheese upon their tables, because the cheese is so heavily skimmed as to become nearly indigestible, and worthless as an article of food. The manufacture of good cheese should and would undoubtedly increase largely the demand for foreign markets and greatly increase the consumption at home. The making of so much poor, heavily-skimmed cheese has, beyond a doubt, largely decreased the demand for foreign markets, and so decreased the consumption at home as to be beyond doubt the main cause of the great decline in prices.

The strong competition among factorymen and the demand of the patrons for large dividends, in far too many cases, induces both manufacturer and patron to sacrifice future prospects for present gain.

I am fully convinced that a continuation of this product will so check consumption of cheese, both at home and abroad, as to make future markets unreliable and the business unprofitable. And the only safe course is to make cheese good enough to stimulate consumption to such an extent as to make a ready market, at remunerative prices, for all the cheese the country can produce.

G. P. Lord: Was next called upon to speak on this topic. He said that all would agree that cheese had been well made; and the question of skimming must depend upon the chance that the manufacturer got to make from milk, after making butter. Willard told about cheese made in Norway—rich in appearance, nutty in flavor, that could be spread like butter, which he was told was skim cheese. He (Lord) had a high opinion of a man who could make good cheese from skim milk. An attempt had been made by this association to have the State establish an experimental station. If, by the means of such a station, we could make first-class cheese out of poor milk, we would have gained an important point. We all know that after cheese is made and the whey set in a vat, a large number of cream globules will arise on the whey. Mr. Wilder, of Wisconsin, said that he made butter from the skimmings of his whey vat, with which he greased his cheese Those who make cheese should know whether they are making all they can out of the milk.

S. K. Bartholomew: It was not his intention to say anything against skim cheese,—he wouldn't say anything lest he should hurt the feelings of his Elgin friends. This question had been discussed before; and both makers and dairymen will tell you that they are after money, and the manufacturers are anxious to make skim cheese, simply because they make more out of it. You see the position we're in—we wish to make all we can. At this time of year you can get twelve pounds full-cream cheese from one hundred pounds of milk. This is worth 11 cents per pound, or $1 32 gross for the milk, which nets the patron $1 04. Now take it the other way: The manufacturer skims his milk and makes three pounds of cheese from the same quantity of milk, which brings $1 72 gross, or net amount of $1 33 for the patron. Now the question comes, will a man who is in the habit of skimming light in order to keep up the quality of cheese be willing to allow his competitor to make a dividend of twenty or fifteen cents more than himself, very long? I think not. It is merely a question of dividends; the plan by which a man can make the best returns to his patrons, is the one he will adopt.

R. M. Patrick: Said he did not advocate the making of full-cream cheese in winter, but the making of a better quality of skim cheese.

S. K. Bartholomew: Said the trouble was, those cheeses were sold when cheese was so high that they brought more than they were worth.

Hon. E. C. Lovel: Asked if it was not a fact, that skim cheese, if kept six or seven months, would not be better cheese than when fresh?

D. E. Wood: Said that skim cheese would not keep so well as full-cream cheese.

Topic No. 9 was then taken up and C. C. Buell read the following paper:

BY C. C. BUELL, ROCK FALLS, ILLINOIS.

"The Butter Dairy—How to Make it Profitable."

There need be no apology for discussing this subject in a dairymen's convention. Conceding peculiar advantages to creameries with their various methods of management, these are not always available even if they be desirable, and the fact remains that a greater part of the butter consumed comes, and will continue to come, from the butter dairy distinctively so called. The late improvements in dairy apparatus make the well managed dairy a full rival of the creamery as to quality of the product, not to claim any

thing more. No greater service, therefore, can be done the masses who will and must eat dairy-made butter, and the large class of farmers who must and will make dairy butter than to discuss the economics of this branch of the dairy business.

The special field which this paper is destined to cover begins with the delivery of the milk from the milking stable. There are many questions which in a certain order of relation would precede this, but they are not so distinctively important in any view as those which come after. We neglect the many for the purpose of giving more specific attention to a few. The pivotal idea of this paper is profit. A few things we shall assume; we shall assume that the old style method of setting milk in six, eight or twelve quart pans is too far behind modern improved apparatus for cream raising, considered as to cost of labor, buildings and fixtures, to be entitled to more than this casual mention.

We shall assume that the Swartz, or Swedish system of cream raising, or the same as modified by American practice, has procured results equal in respect to quality of product of those of any other system of practice. Deep setting in cold water, or ice cold water is the fundamental idea on which the profitable dairy in the present stage of the art of butter-making must be managed. What the centrifugal machines may hereafter develop, remains to be seen. So far as general evidence goes, it would seem to establish the conclusion that in order to secure the largest yield and the best quality of cream: 1st, the milk must be set warm. 2d, it must be cooled quickly. 3d, the milk must have free ventilation. These the Swartz system and the best American practice secure, and they may be made the simple test by which the practical dairyman may judge of the various devices for cream raising presented to his attention. After these are secured there remain only the economical question as to cost of apparatus, cost of buildings, and cost of labor in operating. To some of these points we will address ourselves further on.

Another element of importance which enters into this discussion is the size of the dairy. We think the maximum of profit in a dairy can not be reached with less than twenty cows. Probably the number should be not larger. The number should be large enough so that the business shall constitute the leading business of the manager, and command his best thought and attention. It should be of sufficient magnitude to warrant the principal procuring and reading the best dairy literature current, in spending the necessary time and money in attending the dairymens' conventions, and in thoroughly posting himself in the various lines of thought and investigation pertaining to the business. We believe the five and ten cow dairy will, except under peculiar circumstances, labor under disadvantage. The milk of such, as a rule, had better go to the factory or the cream to the creamery. In general it is to be remembered the larger the dairy the less in proportion the cost of building, fixtures and labor for running it.

Assuming, then, that we have a dairy of standard quality, numbering say 20 to 100 cows, let us proceed to show how it can be managed at a profit. Taking the Swartz system of cream raising as the key to the situation, let us proceed.

In the first place, we must have a dairy building—but not necessarily an expensive building. But we must have an abundance of water. We have seen springs that were valuable, but the best thing usually available is a good well. If you have not this at least, don't go into the dairy business. Select a site for dairy building which has good natural drainage, and as most farmers need the waste water for stock watering purposes either in summer or winter, or both, let the drainage be towards the cattle yard. Erect a building say 16 x 24 with stone foundation walls. Eight foot posts will be high enough. Cover the sides with good drop siding and the roof with good shingles, leaving ample openings for windows and doors. If well built, no further expense on wall and roof is necessary. Floor one-half of this building with good cement, from which water will readily flow into a good drain. Cover the remaining part with good wood floor draining towards the cemented part. At the cemented end erect an elevated tank, large enough for supplying all needs in the dairy room as well as the stock in the yard. Locate the well just outside (or inside) convenient to supply this tank with water by a force pump run by a cheap horse power. Locate the horse power at the other end of building and outside, the shafting to run churn and pump being overhead and just inside or outside the building, according to the notion of the builder. The wood floor makes an appropriate place for churn, butter-worker and stove. The cemented floor will accommodate the small water tanks or milk coolers. No better cream can be produced than with the common setter standing in a pool of cold water. If the setter is used, let these stand in small pools of proper size, with covers for protection against flies or dust in summer and against freezing in winter, these pools being supplied by the larger and elevated tank before described. If any of the patent labor-saving devices for cream raising are used (and some of these are really labor-saving) they can be supplied in the same way, the water going to the stock yard. A cheap pipe for this purpose, which can be laid under ground with a constant descent, is a 4 x 4 scantling with a channel sawed in one side and covered with a band.

With these fixtures the daily routine of work in summer would be about as follows: At milking time in morning a horse with good spirit and hood-winked would be hitched to the power, and the pump put to work. Water enough for the entire day would be pumped during the milking time. The churning could also be done at the same time or afterward, as convenient. The horse-power would be available in the same manner at evening, and thus there would never be a lack of pure cool water to control temperature of milk or cream. The abundance of pure cold water thus supplied would contribute largely to the purity and sweetness of the entire dairy room. We have seen a few establishments built on the economical plan we have described, which were turning out just as good product as can be made, and at the minimum of cost in labor and expenditure.

This arrangement leaves no place for the use of ice, and indeed the cost of a good ice house would go far towards providing the whole thing. We have here made no provision for the keeping of butter, for which, of course, special provision as in other cases would have to be made.

If we summarize, the expense of outfit would stand about as follows:

Cost of building and elevated tank not to exceed	$100
" force pump and say six feet pipe	20
" power and necessary shafting	60
" churn and attachments	30
" butter worker	10
" cooler and cans	40
Total	$260

We have purposely omitted the cost of well and tower fixtures of pump, as these are so variable. We have also omitted water heating arrangements. A common cook stove (unless for other purposes, perhaps,) with a large, square, galvanized iron boiler, and costing altogether less that ten dollars, has done very efficient work in such a place. A small feed-cooking steamer would be better.

The estimates we have made we consider ample for a dairy of fifty cows, and believe they would meet the needs of a still larger dairy. They amount to only about fifty dollars a cow, all told. Something should be credited for the value of the waste water for stock. We have known more than one-third of this amount given for the royalty on a patent pan stove. We claim nothing for the beautiful in our plan, although it is not inconsistent with any amount of ornamentation which money and good taste could bring to bear. We have had in mind the intelligent, enterprising farmer with small means and a mortgage on the farm, perhaps, who is thinking of going into the dairy business, not for the æsthetics of it, but for the last dollar it will pay. I will add nothing more except to say that the product, when well made and neatly finished for the market, is only to be handled on sound business principles, and a fair profit is likely to be the result.

At the conclusion of the paper the President then asked if the chairman of the legislative committee was ready to make a report. Hon. G. P. Lord, the chairman, replied that they had no report to make.

Lawrence moved that the present legislative committee be reappointed for another year. After the adding of several names, making the committee stand as follows, the motion was carried:

Legislative Committee—G. P. Lord, M. H. Thompson, Gen. Parsons, H. W. Meade, Jos. Tefft, C. H. Larkin, J. B. McLean, E. C. Lovell.

M. H. Underwood: Suggested that the committee make it their duty to see to the enforcing of the laws concerning butter and cheese adulterations.

Dr. Tefft: Was asked what the real duty of the committee was, and he stated that it was to endeavor to have the association recognized and aided by the State, and to get an experimental dairy station established.

Mr. Lovell: Said he could give them some reasons why the committee did not succeed when at Springfield last winter. He had the honor of introducing the committee to the special committee appointed by the Legislature, and was present when they met together. He thought they worked well and accomplished a great deal in the short time they were there. They had a law passed which should be better enforced than it has been. We succeeded in getting a bill through the House, and recommended by the Senate committee, appropriating $3,000 for this association, but it was lost in the Senate. In talking with members of the Senate and trying to persuade them that the benefits from such an association would be great, he was told that they thought it was the heighth of impudence for dairymen as well posted in their business as the members of your committee to come down there and ask the State to appropriate a certain amount for their instruction in matters about which they knew more than any one else. He said the opposition came mainly from the southern part of the State. He was in favor of sending the committee back there to work.

Adjourned until 7 P. M.

The evening session was called to order at 7:30 by the President.

M. W. Corbett, of the Farmers' Review, offered the following resolutions, which were adopted:

WHEREAS, It is a fact that *pleuro-pneumonia* and other contagious and infectious diseases among cattle, and cholera among swine, prevail in various localities in this country, whose spread would bring ruin to our vast live stock and dairy interests; therefore, be it

Resolved, That this association hereby most earnestly urge upon Congress, now in session, the passage of enactments that shall prohibit the further introduction of contagious and infectious domestic animals' diseases from abroad, and also from one State to another; also, further enactments that shall effectually stamp out said diseases wherever existing within the territory of the United States.

The committee appointed to draft resolutions concerning John Keating's death, made their report, which was unanimously adopted.

Your committee, appointed to draft resolutions of respect to the memory of deceased members, begs leave to offer the following:

WHEREAS, Since our last annual session an all-wise Providence has removed by death from our circle John Keating, one of our earnest, practical and energetic members, always alive to the interests and needs of the association, therefore be it

Resolved, That in the death of Mr. Keating this association loses an earnest and worthy member, and while bowing in submission to this will, we deeply feel the loss we have sustained.

Resolved, That these resolutions be properly attested and forwarded to the family of the deceased, and that the same be published in the annual report of the association.

R. P. McGLINCY,
S. W. KINGSLEY,
C. C. BUELL,
Committee.

BY GEORGE P. LORD.

"*Milk, its Value and Importance as an Article of Food.*"

The food question is as old as the human race. What to eat, and how to procure it, has engaged the attention of mankind in all ages and countries.

Probably at no time in human history has the question of food assumed greater importance than during the past two or three years.

From Ireland, and Persia, and China, and now from Russia, has the cry come, give us food or we die.

To meet this great want of the nations of the old world, the people of this country have laid their broad acres under contribution, and with such results that our railroads and canals and steamships fairly groan under the burdens which have been thrust upon them, while our granaries and warehouses are full of the golden grain.

Living, as we do, in the midst of such abundance, we can hardly realize that famine has been more destructive to human life, than the most sanguinary wars that have deluged the world with blood.

So long as it continues to be the policy of the governments of Europe to keep all the vigorous young men in the army, leaving only the infirm, and the crippled, and the aged men, and the women to cultivate the soil, it will be the mission of the people of these United States to feed a hungry world.

But it is not the question of food in general, but a special kind of food, that is to engage our attention.

Let us turn then to the consideration of the value and importance of milk as an article of food.

It will doubtless be conceded by all that milk is a very convenient article to have in the family: that it is very useful in the culinary department, and that it is almost indispensable as seasoning for tea and coffee.

How few people in this land that is literally "flowing with milk," have ever given any considerable attention, or thought, to the intrinsic value of milk as an article of food.

How many here present are prepared to give credence to the statement that a gallon of milk will furnish an amount of nutrition equal to two and three-quarter pounds of boneless beef, or that twenty millions of steers of the average weight of fourteen hundred pounds gross, will not furnish an amount of nutritive food greater than that contained in the annual milk product of the United States, and yet such are the facts.

Nor should we overlook the fact that milk is easily digested, and is therefore a healthful food.

Every princeple of economy, therefore, is against the practice of selling all the milk we produce, and supplying our families with food in the form of poor and indigestible beef, at a cost per pound equal to, if not greater than we receive for a gallon of pure milk.

The constituent parts of milk, as all may know, consist of fat, or cream, caseine, and sugar of milk, with a small per cent. of ash, combined in just proportions for keeping up the animal heat, and supplying the blood, the brain, the muscle and the bone, or, in other words, for the building up and support of the physical system.

If this fact can be thoroughly impressed upon the minds of the people, the daily use of milk, as an article of food, will be greatly increased.

Consider for a moment the situation of the business men in large cities.

They go home from their counting rooms so fatigued in body and mind that they are incapacitated for healthful or refreshing sleep.

After a restless night, they have little or no appetite for breakfast, and so, after a slight but hasty meal, they urge themselves to their daily tasks.

Is it strange that long before the dinner hour arrives such men feel that it is absolutely necessary for them to take something to support their physical system?

It is this felt need of the system that leads many of our business men to resort to the saloons, and partake of the various stimulating drinks that afford temporary relief to their physical depression.

They do not crave ardent spirits for the love of it, or at least not until a constant use of it has become a fixed habit with them.

Now let it be understood by those busy men that a glass of milk will afford relief to their physical depression, that it is vastly superior for that purpose to all the stimulants ever devised by man, and what will be the result?

Evidently there can be be but one result, and that will be that our commercial and literary and business men will discard all stimulating drinks.

If you will refer to the Chicago Inter-Ocean of the 13th of December, you will find an article entitled "The Duration of Life," in which the writer attempts to show (by the comparison with animal life) that the duration of human life should not be less than one hundred years.

He argues that if men were as considerate of themselves as they are of their animals, their lives would be prolonged through a century, and significantly enquires whether human beings ought not to be treated with as much consideration as the beasts they employ.

Now we know that the owner of a speedy horse would not resort to stimulants to keep up the physical force of his horse, when it is to be taxed to the utmost.

He knows that a drink of oat meal gruel given to his horse will refresh and invigorate him, and enable him to bear the strain and perform the task.

So our overtaxed business men should avoid all stimulants.

They should use only such beverages as will nourish and invigorate the system.

They should use milk.

The Divine Chemist made no mistake, when he compounded the ingredients of milk.

He made it the true "Elixir of Life," and while the people who use it may not live to be a hundred years old, they will be vigorous and able to perform the duties and enjoy the pleasures of life to a good old age.

Allow us to suggest to the enterprising dealers in this life-giving beverage, that they establish places, at central points in all of our large cities, where this refreshing and health-giving drink can be obtained by the people.

We have no doubt they would be surprised at the success of the undertaking and extent of their patronage.

There is another view of this subject which we desire especially to call attention to, and that is the absolute necessity of milk as the food of our children, if we would save their lives.

That this may be fully impressed upon our minds, let us turn to the report made by our Commissioner to the Paris Exposition, on the "Preparation of Food," Vol. 5, page 18, of the report.

He says, "The astounding developments of mortality among children in France, lately made to the Academy of Medicine in Paris, a mortality which reached the frightful figure of ninety per cent. in certain communes, made men turn their eyes eagerly in every direction for new aids in arresting the destruction."

Now what aids do you suppose eminent chemists would devise for arresting the mortality among children?

We should expect that they would devise substitutes for milk.

And so we find that Professor Liebig, among others, had on exhibition at that Exposition his "famous substitute for milk."

And we would say that we know of no scientific gentleman who has given more thought or study to the preparation of human food, or whose reputation stands higher in the department of effort, than Prof. Liebig.

Listen now to what the commissioner says about this famous preparation:

He says: "This artificial milk has already acquired considerable extension in Germany, England, and other countries, and in many countries it is the food furnished by charitable societies to the children of poor mothers, to such as are either obliged to abandon their children, or to place them in the nursery establishments by the day."

He further states that "no official report on the success of this new alimentation has yet come to my knowledge. Nevertheless, here in France the milk has been tried by Dr. Depaul, professor at the school of medicine in Paris, on four children of the Foundling Hospital, and they all four died, two in two days, one in three days, and one in four days, and all alike with bilious evacuations."

Could any experiments be more dreadful in their results?

One would hardly expect an official report from the officers of those "charitable institutions" that furnished such aliment to the children of "poor mothers," provided their experiments in the use of such food were similar to those of Dr. Depaul.

We should rather expect to hear those "poor mothers" exclaim, From all such destructive charities "may the good Lord deliver us and our children."

We do not know whether or not the percentage of mortality among children in any of our large cities reaches the "frightful figure of ninety per cent.," but we all know that the mortality is very great.

Nor is the mortality confined to the children of the poor, for if you go through the lanes and alleys of any of our large cities, you will find them swarming with little ones, while the homes of the rich are nearly as silent of infantile voices as though the angel of death had invaded all those places, and swept their loved ones into untimely graves.

Not alone on Judean plains are there "Rachels weeping for their children" slain by a bloody tyrant, but in every city there are mothers weeping for their children that have died for want of proper or sufficient nutriment.

Not only in Germany and England, but in this country as well, there may be found various substitutes for milk, which, for aught we know, are as destructive to human life as that used by Dr. Depaul in the Foundlings' Hospital in Paris.

These compounds are kept by the pharmaceutists in our cities, and we understand they find a ready sale.

We have one of these famous preparations in our hands.

Like all others it is rich in promise, and yet no official reports of its saving or destructive qualities, so far as we know, have ever been made public.

You will notice that all who compound these famous substitutes, claim that their preparations are nearly akin to milk, thus acknowledging that milk is the best food, and that the scientist who can compound an ingredient as wholesome and nutritive as milk, has rendered a valuable service to mankind.

But why should we fly to doubtful substitutes for food for our children, when we have such an abundant supply of milk?

The objector to milk claims that milk that is distributed in our large cities is not pure, or that it has been adulterated.

We know that a great deal has been said about the impurity of milk, and the want of cleanliness of our dairymen and dairymaids.

Were one to believe half that has been said or written on this subject, he would become convinced that all the neatness and purity had been transferred from our dairy industries to the slaughter houses and rendering establishments of our great cities, and that all the impurities of the slaughter houses had been mixed in with our dairy products.

In reply to all such slanders, allow us to say that our dairymen and dairymaids and dairybarns and milkhouses are the very perfection of purity and neatness, as compared with the persons and surroundings where that vile substitute for butter isprepared.

And here we would say that, were the slaughter houses and rendering establishments as free of police surveillance as our dairy industries, they would become intolerable nuisances. Not by legal restraint are our dairies kept pure, but because the dairymen of this country have invested too much money in this industry to be willing to jeopardize it for want of cleanliness or care.

And here we would state, that milk drawn from a healthy cow that is fed on wholesome food is perfectly pure.

If any impurities are found in milk, it is from carelessness or design.

And now as to the adulteration of milk.

When we consider how cheap milk is, we are surprised that any one would be guilty of adulterating it.

Milk is probably worth less per pound at wholesale in any of our western cities than chalk.

Its principal cost to consumers is the expense of its delivery to their families.

It costs nearly as much to deliver a pint as it would to deliver a gallon of milk to any one family.

It is claimed that there are two kinds or classes of adulteration of milk, one by the compounding of foreign substances, as chalk or kindred substances and water, the other by the subtraction of the cream, or by skimming the milk.

All such adulterations may be detected with a very little effort on the part of the purchaser.

If the lady who has charge of receiving the family supplies will take a small testing glass and fill it with milk when received, and during cold weather warm the milk in the testing glass, then set it one side for a few hours, she will not require the aid of a chemist to inform her as regards the quality or purity of the milk.

All foreign substances like chalk will be found in the bottom of the glass, and the cream, if any, will separate and rise to the top.

If on examination the milk in the testing glass is free from dirt or other foreign substances, and the cream development is equal to about one-tenth of the milk when put into the glass, then the milk is fully up to the standard.

We submit that this method of testing milk is very simple.

We know of no other article of food in which adulteration can be so easily detected.

After this brief survey, we are prepared to consider the final report of our Commissioner to the Paris Exposition.

In doing this we should keep in mind the fact that the most famous preparations of infantile food that could be devised by scientific men were on exhibition at that exposition, and the whole subject was being investigated in the light of the "frightful mortality among children," and the felt necessity of devising some means of "arresting the destruction."

After a full consideration of the whole subject he reports that "in France the people are satisfied in this emergency with cow's milk."

"The milk of a cow, with the addition of one-fifth water and a little sugar, is not only a nearer approximation, it is the nearest approximation" to the food which nature has designed for children.

"Why then," he adds, "fly to a doubtful chemical composition, when we have at hand so natural and safe an aliment as cow's milk."

This was followed by a paper from Mrs. F. S. Bosworth.

BY MRS. F. S. BOSWORTH, OF ELGIN.

"The Farmers as Contributors to National Prosperity."

In considering the well-being of our nation, we shall take into account not only its material wealth, but its wealth of intellect and moral power, and the industry which contributes most largely to all these must of necessity form the foundation of our success as a people. To affirm that agriculture lies at the base of our material wealth, or, in other words, that all branches of industry are, to a great extent, dependent upon what the soil yields, is but to repeat what has often been asserted. It is a matter of fact that when the land of our country yields bountifully, all trades expect to thrive, unless by some manipulation the producer fails to receive just remuneration for his labor in the sale of his produce.

Although productive soil is indispensable, it must receive cultivation and the owner of the land shall derive a compensation equivalent to the profit which a merchant makes in the sale of his goods.

If for any cause the year proves an unprofitable one to the farmer, be he a tiller of the soil, or one who derives his income from dairying, its effects are felt by all in our cities and towns engaged in mercantile business, and, perhaps, such a state of things is more injurious to them than to the farmer himself, since food, that great essential, which the farmer produces for his own consumption, all others must acquire by purchase, so that, though the farmer does not thrive, he can live, while others must thrive to live.

Does not this view, and is it not a correct one, place the farmer at the foundation of our material wealth? And is it not true that the enterprise, upon which all others depend, contributes most largely to a given end? Who but the farmer feeds the thousands pouring in upon us from foreign shores? And they not only do this, but export to those that

remain at home. We hear much about our growth and increase of wealth, as a people, and would ask to what one class do we owe this so much as to the men who have opened up these broad and rich prairies to cultivation, and whose sons, in many instances, are now engaged in the same work further west. True, a people properly situated might acquire wealth by the pursuit of other industries, and import their food, but we are not speaking of what might have been with us,—rather, what *has been* and *is*, and claim that the very length and breadth of our great land makes agriculture the basis upon which other industries must build. But to enhance the real prosperity of our nation, a class must be something more than the producers of wealth, they must be both intelligent and upright, for two reasons—they form a part of the whole, and being this in character, will directly influence the remainder. One means of applying this test, as to intelligence, is to inquire how much the farmers have improved their own condition? What our progress has been, as a nation, in the art of agriculture?

The answer is so apparent, and yet comprises so much, that it seems both needless and difficult to frame it in words. We may with pride, however, make a comprehensive statement that farming, and especially dairying, is rapidly being reduced to a science, having its publications, and holding its conventions, of which the present State gathering is a notable illustration. Take as another the American Institute at New York city, which next November holds its fifth annual fair, where, it is said, "One can note the progress of the age, especially in all that facilitates the work of the farmer." Connected with this is a farmers' club, which meets weekly for the discussion of its interests. This institute has 2,000 members, occupies buildings covering forty city lots, possesses a valuable library of nearly 11,000 volumes, chiefly on agriculture, chemistry and industrial art, and is soon to have an international fair. National and State Dairymen's conventions have taken their places among the first of those in our land, both in point of interest and importance.

It would be impossible to enumerate in detail the improvements in farming and dairying utensils during the last fifty years, and perhaps this is more particularly marked, both of utensils and their use, in the latter, brought about by combinations in the manufacture of butter and cheese. Truly the old-fashioned cheese press, and the churn with the boy or girl to work its dasher two or three hours over a hard churning, have passed away. All this lays the nation under tribute to the farmers, and now let us apply another test, by which we may ascertain how its prosperity has been promoted by them, in direct service. When we pass in review the early history of the American people, we find that though poor financially, they were rich in men and women of rare intelligence, and those sterling qualities so essential to the success of any government, and especially a republic. Had one the time and ability to recall and present before your honorable body the details of our past history, undoubtedly it would be seen that no one class more, if so much, abounded in these as did the farmers. The hardy soil of New England gave us men, if not money, and at a time, too, when men were most needed. A glance along up to the present time will show this has ever been true of the soil of our country.

Mrs. Harriet Beecher Stowe has well said, "America is above all other things an agricultural country, and her aristocracy, whether of talent or wealth, generally trace back their origin to a farm." By referring to her book, "Men of Our Times," we shall find this illustrated in the parentage of some of our greatest and best men. Our beloved Lincoln was the son of a poor farmer, and "At seven years of age was set to work, ax in hand, to clear up a farm in a western forest. Until seventeen his life was that of a simple laborer, with probably not more than six months' schooling in his whole life. At nineteen he made his trip to New Orleans as a hired hand on a flat boat, and on his return split the timber for a log cabin, and built it, and enclosed ten acres of land with a rail fence of his own handiwork." Of Salmon P. Chase it is said, "His parents were of the best class of New England farmers. Bible reading, thoughtful, shrewd, closely and wisely economical." Literary material was so scarce in that region that his first writing lessons were taken on strips of birch bark. His father died when he was young, leaving his mother with little property except a small estate of her own. She was of Scotch blood, at once "Shrewd, pious, courageous and energetic," belonging to that class of New England mothers, whose chief aim, "Toward which they set their faces as a flint," was to give their sons a college education, and who accomplished it by "Infinite savings and unknown economies." At fourteen he went to live with an uncle, where he remained two years, working on a small farm "just as hard as he could." After graduating from Dartmouth college, being penniless, he was offered fifty cents by his uncle, the Senator, with which to buy a spade to begin with, for then, said he, "You might hope to come to something." Such training, says Mrs. Stowe, gave us a Secretary of the Treasury, and Chief Justice of the United States. Henry Wilson, United States Senator and Vice President, was born at Farmington, N. H., of very poor parents, and at ten, bound to a farmer till twenty-one. Says the writer, here he had the usual lot of a farm boy—plain, abundant food, coarse clothing, incessant work, and a few weeks of schooling at the district school in winter. In these eleven years, by twilight, firelight, and on Sundays, he read over one thousand volumes of history, geography, biography, and general literature, borrowed from libraries and individuals. Horace Greeley was born at his father's farm, Amherst, N. H. In boyhood he was fully occupied with his hard work on the farm, and his father, in spite of honest industry, became bankrupt when Horace was nine years old. At fifteen he procured a situation in a printing office. William A. Buckingham, eight years Governor of Connecticut, taking her through the war, was the son of a thrifty farmer, a deacon in the church. Of his mother it is said one of her daily household sayings to her children was, "Whatever else you are, I want you to be Christians." In the region where she lived her memory is cherished by all in the records of good words and deeds. The education of this man, it is affirmed, was a striking specimen of New England, based first on the soil, in the habits and associations of a large and well-conducted farm. At twenty he left home, and entered a dry goods store as clerk, doing the last three years on the farm as much work as any of his father's hired hands. Daniel Webster's father was a small farmer, living in the wilderness, and, it is said, "but for a system of education, which pushed the means of instruction into remote solitudes, would never have been heard from in public life." Our poet, J. G. Whittier, was the son of a farmer, and worked on the farm till eighteen years of age; and to crown all, the President elect of these United States, James

A. Garfield, is to-day a farmer, living on his farm—a home thus described by an eye witness: "The house is quite a large wooden one, not at all elegant, but the whole place, barns and all, is the residence of a well-to-do farmer in appearance."

These men, and many more we might mention from the class, represent not only intellect, but integrity and uprightness—many, if not all, christianity.

Upon these principles is our nation founded, and upon these alone can it be perpetuated. Men representing these have laid the ground work of this republic, and all parents should feel the responsibility of so training their children as to take up and carry forward the work thus begun. The future of this country rests with them, and it is fortunate for us that the farm far surpasses the city in its facilities for training them to habits of industry and morality. The boys on our farms are not surrounded by saloons and gambling dens; they can walk forth and breathe God's free air without inhaling moral poison at every turn. The very air of the country not only invigorates the body, but lifts the mind and heart to God, the Creator, provided man will look about him, and allow nature to have its course. Ask the philanthropic men of our large cities why, at such an outlay of time and money, they send the poor children out by carloads into the country for one day only each year? They tell you that one day among the farmers leaves its impress on these children, physically and morally, the whole year. Blessed then are they whose home, that type of heaven, is here. I can testify from personal experience that the memories of the farm and home where I was reared grow dearer and more vivid as I grow older—they must be as much deeper and broader than those that cluster around a city home, as the one is broader than the other. The home, barns, orchard, garden, woods, brook, hill and hollow, all pass before one's mind, and carry them back to childhood, with its pleasures and wholesome (though sometimes irksome) toil. We see that all the men to whom reference has been made, were hard-working farm boys, and in most cases it would not be more detrimental to bring up children without education, than without work. Habits of industry are a great safeguard against temptation, and the farm furnishes employment for the boys, whereas in a city home it is difficult to find enough for them to do, to keep them out of the hands of him who employs the idle. Couple this fact with the absence of places of vice into which young men may be lured, and we see the great advantage the farm possesses in training children.

The disadvantages are rapidly vanishing, in that farmers are becoming able to place in their homes, books, paintings, music, and many other attractions, which are refining and elevating in their tendencies, and the effects of which are being seen in the sons and daughters of the present time. But the indebtedness is not all on one side—the farms are as much benefited by the boy, as the boy by the farm; and that this valuable appendage may be properly appreciated, we would commend to parents the perusal of the sound, though somewhat humorous, words of Charles Dudley Warner, entitled "A Boy on a Farm," who gives it as his opinion, that a farm without a boy would soon come to grief, closing with the words, "and yet I doubt if any boy ever amounted to anything in the world, or was of much use as a man, who did not enjoy the advantages of a liberal education in the way of chores." Permit me to recommend to your notice the appreciation, as well, the chore girl on the farm, who sometimes fills the place of both in that unfortunate family where the boy is wanting. Would that every father and mother in our rural districts might feel, as in the past, so in the future, the weal or woe of a nation must largely depend upon what the sons and daughters of farmers are trained to do and be, and exercise their parental care and authority accordingly. It is plain that to these we must look for an influence which shall counteract that of the extravagant, the idle, and the vicious, with whom the large cities abound. Does it not seem that we carry within, the elements of our own destruction, in the habits of life, and sects, whose authority is paramount to the national, unless the former can be corrected, or overbalanced, and the latter properly restricted? Combine with this view the statement of our consul at Zurich, Switzerland, that among the thousands landing daily upon our shores are many paupers and criminals, shipped on condition that they never return to their native land, and soon possessing here the same power in the ballot that any American-born citizen exercises with so much just pride, and we have some of the dangers which threaten our national life. With this outlook, briefly and imperfectly drawn, we appeal to you, Mr. President, and gentlemen of the convention, here assembled, to use your influence and votes in such a way as to promote sobriety, industry, honesty, and all the principles of right and justice upon which our Nation is founded, that we may continue to be what we now are—a prosperous, intelligent, Christian Republic.

Prof. Pratt, of Chicago, author of a work on "Food Adulterations," delivered a short lecture on that subject.

[No minutes were taken of Prof. Pratt's lecture, he promising to forward the manuscript to the Secretary, but after waiting until February 1, and not getting it, the report was sent to press without it.—SEC.]

Jules Lombard, of Chicago, being present, some one suggested that he favor the audience with a song. After being requested by the President, he came forward and sang "O, Are Ye Sleeping, Maggie." This pleased the audience so well that he was recalled, and sang "America," the audience joining in the chorus.

Adjourned until 9 A. M., Friday morning.

FRIDAY MORNING'S SESSION.

The Convention was called to order soon after nine, and business was immediately taken up.

The report of the Secretary was read and placed on file.

SECRETARY'S REPORT.

DR.

To R. M. Patrick	$55 25
" advertising	17 00
" Dr. Tefft	18 75
" membership fees	3 00
	$94 00

CR.

By printing proceedings	87 00
" postage	4 00
" stationery	3 00
" programmes and railroad checks	4 50
" telegrams	1 00
	$99 50
Dr. balance due Secretary	$5 50

TREASURER'S REPORT.

R. M. Patrick, Treasurer, in account with Illinois State Dairymen's Association:

DR.

1880.		
March 8.	To cash of Dr. Tefft, for memberships	$34 50
Dec. 12.	" " received from 56 members	56 00
Dec. 17.	" " donated	1 50
1881.		
Jan. 20.	" " received of Dr. Tefft, from 20 members	20 00
		$102 00

CR.

1880.		
March 8.	By paying Anderson Bal. printing	18 75
Dec. 17.	" " Dr. Pratt lecture	10 00
Dec. 17.	" " balance hall expenses	7 00
1881.		
Jan. 27.	" balance in treasury	66 25
		$102 00

G. P. Lord then offered the following resolutions, which were unanimously adopted:

WHEREAS, The adulteration of human food has become a great evil in our country, and is now being carried on to an extent not only of endangering our manufacturing industries by destroying the confidence of the community in our manufactured products, but also to endanger the prosperity of those who have been largely engaged in the business of adulterating human food, by reason of new and more dangerous and obnoxious forms of adulteration, thereby jeopardizing the lives and health of our people; therefore,

Resolved, That the adulteration of any article of human food or drink, or of drugs intended for human use, meets with the hearty disapproval and condemnation of this Association.

Resolved, That it is the duty of this Association, and of all our boards of trade, and also of all our municipal boards and boards of health, to take such united and persistent action on the subject of adulteration as will effectually stamp out the evil and prevent the sale of adulterated food and drugs in all our communities.

Resolved, That it is the duty of the State and General Governments, to enact such laws as shall prevent the adulteration and sale of all articles of human food and drinks and drugs, in all the States and communities of our country, and their transportation from one State to another.

Resolved, That the Legislative Committee appointed by this Association be requested and instructed to take prompt action to bring this matter of the adulteration of articles designed for food and drink, and drugs, before our Legislature at an early day, and by all means in their power endeavor to secure the passage of such laws as shall effectually prevent the sale of adulterated articles of food, or drink, or drugs, in this State, otherwise than with full notice of their character.

Resolved, That this Legislative Committee be requested to take prompt action to bring this question of the adulteration of articles of human food, and drink, and drugs, before the Congress of these United States, and endeavor to secure the passage of such laws by the General Government as will free this country from the evils of adulteration.

Resolved, That the bill for the incorporation of the Illinois Dairymen's Association, passed by the Senate and favorably recommended by two committees of the House of Representatives, at the last session of the Legislature, should become a law without further delay, and that such State recognition of this constantly growing industry is alike due to its importance and the great additions it has already made to our taxable wealth, as well as to the State at large, which is entitled to the benefit of the investigations and experiences of this Association, while it should liberally aid the further prosecution of its labors.

After the names of the members who had paid their fee had been read, a motion was made by W. W. Bingham that the next annual meeting of the Association be held at Dundee, commencing Wednesday, December 14, 1881.

This was carried.

R. M. Patrick said some method should be adopted whereby we could have a larger membership.

McLean remarked, jokingly, that the reason Elgin people did not become members was that they already knew enough about the business.

R. M. Patrick moved that a committee of five be appointed to solicit members.

This was carried; and H. C. Edwards, Dundee; R. M. Patrick, Marengo; C. C. Buell, Rock Falls; O. S. Cohoon, Belvidere; Luther Bartlett, Bartlett, were appointed as such committee. The committee was instructed to appoint sub-committees in all of the counties interested in the dairy industry, to canvass.

It was suggested that the membership fee be reduced one-half to those who had not received the benefit of the meeting.

This was objected to by many. Dr. Tefft thought it would be using those who had already paid full price unjustly. The trouble was, he said, our members did not take the interest they should in the Association. In the Iowa Association, where they have over 600 members, each member makes it his business to solicit aid for the organization. After considerable talk on both sides of the question, it was decided not to change the amount of membership fee.

The committee on nominations were called upon for their report.

The chairman, S. W. Kingsley, then read the following report, which was, on motion, adopted:

For President, Dr. Joseph Tefft, Elgin; Secretary, R. P. McGlincy, Elgin; Treasurer, R. M. Patrick, Marengo; Vice-Presidents, C. C. Buell, Rock Falls; *W. M. Patton, Sandwich; S. W. Kingsley, Barrington; E. H. Seward, Marengo; J. R. McLean, Elgin; Israel Boies, Davis Junction; †Luther Bartlett, Bartlett. *Prof. F. H. Hall, Sugar Grove; I. H. Wanzer, Oneida; *Charles Boone, Winnebago; *John Smallwood, Freeport; L. B. Parsons, Flora; *W. H. Stewart, Woodstock; H. W. Mead, Hebron; N. Elred, Gilman.

The Secretary was instructed to notify the Vice-Presidents of their election, and request them to remit their fee of $1. Those failing to respond would have their names omitted from the roll of officers and the list of members.

A resolution tendering a vote of thanks to the people of Marengo for their uniformly kind treatment of members from abroad, was offered by R. P. McGlincy and unanimously adopted.

C. H. Larkin then offered a resolution thanking Mesdames Bosworth and Crosby, of Elgin, and Prof. Powell, of Chicago, for their able efforts to entertain the Association.

After some unimportant talk on various subjects, a motion was made by G. P. Lord that the Association adjourn to meet at Dundee, Wednesday, Dec. 14, 1881.

Carried.

STANDARD QUANTITY AND QUALITY OF MILK.

QUANTITY.—Borden's standard—of eight and five-eighths pounds per gallon—is now taken and accepted as the standard for milk, not only in our own country, but in all Europe.

QUALITY.—The Executive Committees of the State Dairymen's Association, after many experiments carefully made, have decided that hereafter the following shall be considered by them as the standard quality of milk in Illinois: Water, 87.5; solid, 12.5—in a scale of 100 parts.

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* No response. † Declined.

ILLINOIS SWINE BREEDERS' ASSOCIATION.

ANNUAL MEETING—1880.

STATE FAIR GROUNDS,
SPRINGFIELD, Sept. 28, 1880.

The Illinois Swine Breeders' Association met in regular annual session in the Secretary's office on the Fair grounds.

Called to order by the President, Charles F. Mills.

Minutes of previous meeting read and adopted.

The President called attention to the increased demand, on the part of the general farmer, for the improved breeds of swine, and that the number of feeders in Illinois who were so indifferent to their pecuniary interests as to breed, and feed "scrub stock," was so limited as not to be worthy of consideration.

It would be a rare sight to see an "old time" native or "scrub hog" in the market, and a buyer could hardly be found that would reduce the uniform appearance and value of a shipment by including in the lot an old-fashioned "razor back."

It is only a few years since that a pedigreed hog was hardly known or appreciated, and a breeder who advertised pedigreed pigs for sale was sneered at by would-be leading swine breeders, and ridiculed by the average farmer.

That day has happily passed, and the efforts of a few earnest and painstaking Berkshire breeders to establish (without expectation of making the enterprise self-sustaining) a well authenticated record of the pedigrees of Berkshire swine, has resulted in the organization of not less than *four* associations for the publication of pedigree records for as many breeds of swine.

The efforts of the breeders connected with the several associations to arrange and publish the pedigrees of representative animals of

the several breeds has attracted the attention of the general farmer and swine breeder to the great importance of selecting purely bred as well as well formed breeding animals.

The wide distribution of the descendants of recorded swine has done more than all other agencies to improve the quality of American pork products.

Packers and consumers are becoming more exacting each season, and the breeder and feeder that keeps pace with the progressive spirit of the age and produces an animal suited to the wants of the "best trade," will be handsomely rewarded with the "top of the market."

The difference between the average and "top price" will make a good profit, and liberally repay for the extra effort required to produce the best specimens.

Stock of good quality can be found in almost every locality in the State, and farmers can generally purchase near at home well bred hogs at reasonable prices, and at rates but little above pork prices, and there is no excuse for using other than pure bred sires.

Some of the large swine breeding establishments have been discontinued of late years for want of the extended patronage heretofore enjoyed for breeding animals of medium quality.

The skillful and progressive breeder who is content only with marked improvement from year to year in the quality and finish of his stock, has been, and will be in the future, handsomely rewarded with a profitable demand for superior specimens of any of the several breeds of swine.

The magnitude and growing importance of the home and foreign trade in American pork products is realized but by few of the breeders and feeders of swine.

Authorities estimate that there are over thirty millions of hogs produced annually in the United States, and over seven million head, or nearly one-fourth of the "hog crop" of the country, is received and largely manufactured at Chicago.

It is an established fact that the quality of the pork products manufactured from swine fed in Illinois is not excelled by that produced in any locality on either continent.

We must not be content with present results, but resolve and earnestly work to improve the quality and feeding capacity of swine, until a better product at less expense is obtained.

The value of "hog products" annually exported from the United States is over one hundred millions of dollars, and the foreign demand is rapidly increasing as the superior quality of American pork becomes better known.

The distribution of the trade in American pork products is as follows, for the fiscal year ending June 30, 1880, as reported by the Chief of the National Bureau of Statistics:

Countries.	*Bacon, Lbs.	Pork, Lbs.	Lard, Lbs.
England	509,054,555	33,429,594	103,207,[illegible]
Scotland	45,143,778	3,558,382	9,325,[illegible]
France	66,357,041	1,608,545	55,482,[illegible]
Germany	26,843,862	1,259,417	85,506,[illegible]
Belgium	67,100,175	333,140	36,273,[illegible]
Cuba	8,442,505	670,847	22,625,[illegible]
Hayti	245,635	13,942,829	1,132,[illegible]
Porto Rico	794,506	3,407,211	2,459,[illegible]
British West Indies	1,190,617	7,333,475	2,185,[illegible]
British Guiana	332,603	3,261,740	712,[illegible]
United States of Colombia	142,956	269,475	5,174,[illegible]
Brazil	163,699	293,162	7,542,[illegible]
Sweden and Norway	7,708,974	.....	.....
Netherlands	9,587,810	63,600	7,343,[illegible]
Quebec, Ontario, etc	5,453,698	13,980,837	8,976,[illegible]
Nova Scotia, etc	65,155	3,156,660	259,[illegible]
Newfoundland, etc	78,396	3,839,183	48,[illegible]
Denmark	5,615,049	90,000	6,617,[illegible]
Mexico	90,496	20,100	1,[illegible]
Venezuela	337,572	153,430	3,451,[illegible]
Spain	1,819,337	3,487	1,248,[illegible]
Italy	.....	.....	4,632,[illegible]
Peru	2,885	27,000	891,[illegible]
Austria	709,985	10,600	1,361,[illegible]
Ireland	815,500	10,000	391,[illegible]
All other countries	1,676,320	5,227,066	6,698,[illegible]
Total, June 30, 1880	759,773,109	95,949,780	374,979,[illegible]

* Includes hams, etc.

Export trade in hog products during twelve years, to June 30, 1880:

Year.	*Bacon, Lbs.	Pork, Lbs.	Lard, Lbs.	Total, Lbs.
1869	49,228,165	24,439,832	41,887,545	115,555,542
1870	38,968,256	24,639,831	35,808,530	99,416,617
1871	71,446,854	39,250,750	80,037,297	190,734,901
1872	246,208,143	57,169,518	199,651,660	503,029,321
1873	395,381,737	64,147,461	230,534,207	690,063,705
1874	347,405,405	70,482,379	205,527,471	623,415,255
1875	250,286,549	56,152,331	166,869,393	473,308,273
1876	327,730,172	54,195,118	168,405,839	550,331,129
1877	460,057,146	69,671,894	234,741,233	764,470,273
1878	592,814,351	71,889,255	342,766,254	1,007,469,860
1879	732,249,576	84,401,676	326,658,686	1,143,309,938
1880	759,773,109	95,949,780	374,979,286	1,230,702,175

* Includes hams, etc.

The feeding and manufacture of the hog crop of the United States is one of the leading industries of the Nation, and has returned the legitimate dealer as handsome profits, with as few exceptional years, as any other line of business.

It is asserted by authorities that swine's flesh, when well fatted, is composed of the following elements: about 38 per cent. water, 10 per cent. lean meat, 50 per cent. fat and 1½ per cent. salines, leaving a slight waste.

In 100 pounds of dressed pork there is usually 14 pounds ham, 16 pounds of shoulder, 40 pounds of sides, 16 pounds of lard and 14 pounds of "waste and loss."

Among the first questions to be definitely settled in the minds of all engaged in manufacturing (either meat or other articles), is the

cost of production; and, secondly, the margin of profits that may reasonably be expected when the article is ready for the market.

It is quite common to hear feeders say that they averaged ten or more pounds of pork for each bushel of corn fed to hogs, and while some few may have obtained such results, the great majority of feeders have not done as well.

Ten pounds of pork for each bushel of corn fed, at the average price ($3.60) of pork (live weight) the past four years, would give a return of 36 cents per bushel for corn, an increase of about eight cents per bushel over the average market price realized for corn during the same period.

The expense of marketing corn exceeds the cost of feeding the same to hogs.

In 1879, the total gross weight of hogs marketed in the State was 702,102,812 pounds, which, at the rate estimated above (ten pounds of pork to the bushel of corn), would represent 70,210,281 bushels of corn.

This quantity of corn (70,210,281 bushels), at eight cents per bushel, the profit estimated above on feeding corn to hogs over the price obtained for corn in market, would add to the annual revenue of the feeders in this State the sum of $5,616,822.48.

While the foregoing estimate (ten pounds pork to bushel of corn) is considered unusually favorable, this estimate may be realized by the great majority of feeders in Illinois, with improved breeds of swine and conveniences.

Pork packers have made colossal fortunes in manufacturing the pork products of this State. A large portion of this net profit should have been retained on the farm, where the time required to cure the pork would hardly be missed during the comparatively leisure season during the fall and winter.

The methods of curing and smoking meats are so well known and practically understood by farmers generally, that it is a matter of surprise and regret that a much larger proportion of the feeders of the State do not cure their own meat, and thereby retain the handsome margin of profit thereon, that so largely swells the revenues of the shippers, packers and curers, to say nothing of transportation and the loss of valuable offal for fertilizing purposes.

The following papers were then read:

JUDGING SWINE AT FAIRS.

Read by Phil. M. Springer before the Illinois Swine Breeders' Association at Illinois State Fair, 1880.

Whatever differences of opinion may arise in discussing the subject of judging swine a Fairs, there is at least one point on which all may agree, viz: that the judging should be done by experts. The importance of having thoroughly reliable and intelligent judges is so apparent that it might be supposed nothing more than a mention of this part of the subject would be necessary. Without wishing to reflect on the wisdom or good intentions of our Fair managers, it may be said that usually there is very little care taken in the selection of judges. With a view of interesting the people and bringing them to the Fairs from different parts of the State or county, as the case may be, parties from different localities are appointed to serve on the awarding committees. Admitting that in such appointments, the best possible selections are made, it seldom happens that the appointees are on hand at the time the committees are called upon to act. Consequently the superintendent is obliged to pick up committeemen as best he can. So common has this become that interested exhibitors, more obliging than conscientious, have learned to provide for the filling of such vacancies by having friends at hand on whom they can rely, but to whose special interest in the exhibition the superintendent is left in blissful ignorance. A "packed committee" is the usual result, followed often by misplaced awards and the disappointment of all parties interested except the owner of the winning animals. No

reasonable man will complain when fairly defeated, but when unjustly wronged by a "packed committee" he must be a man of more than average patience and forbearance who can keep his mind to himself on such an occasion, and on reaching home talk enthusiastically to his wife or neighbors about Fairs, and the great advantage they are to the country.

The difficulty of securing the attendance of a sufficient number of committeemen of known integrity and ability as judges of any given class of stock is urged in defense of the managers after the damage is done, but the return of the year brings a repetition of the same procedure.

That the formation of half a dozen or more reliable committees of three or five men each to judge the swine at an Agricultural Fair is next to an impossibility cannot be denied. To insist that it can and must be done seems useless. Certain it is that such committees are needless when we consider that the judging can as well be done by committees of one each, and that single judges can be so much more readily secured than committees of three or more. By the employment of single judges the responsibility for accuracy and justice in the awards is definitely placed. When men of experience and reputation for ability and integrity are chosen, their sense of honor and self respect will bear them above temptation to wrong in making awards. Such men should be engaged and their appointments made known prior to the opening of the Fairs, and a reasonable compensation paid them for services rendered.

The next matter worthy of mention is that the judging of swine at Fairs should be by a scale of points. To do this successfully, breeders should determine among themselves a standard of excellence and scale of points for each of the breeds in which they are severally interested. The National Convention of Swine Breeders, held at Indianapolis, Ind., in March, 1872, adopted a scale of points by which to judge swine at Fairs, as follows:

Back, ten; long ribs, eight; short ribs, seven; shoulders, eight; hams, twelve; length of body, six; flank, six; twist, six; snout, four; jowl, three; face, three; ear, two; neck, four; belly, four; skin, five; hair, three; bone, three; legs, three; feet, two; tail, one. Total, 100.

Such a scale of points, is, however, of little practical value unless accompanied by tables of characteristics for each of the breeds. For example in the above, ear is given two points, but as to whether an upright or a pendant ear is intended can be determined only by a knowledge of the style peculiar to the breed which the animal being judged is said to represent. So also with other points, as face, snout, bone, hair; each breed has its peculiarities, and these should be plainly set forth in a standard of excellence for the breed with a numerical scale showing the comparative value of each point. The breeders of Berkshire swine some years ago adopted such a standard of excellence for the judging of Berkshires, which has since come into use and is very generally accepted as a fair description of the breed, and the one by which it should be judged. The American Poland China Company has also published a standard for Poland China hogs, and there seems to be no reason why every other breed worthy to be perpetuated should not have a carefully prepared standard of excellence and scale of points.

The fixing of such standards must of course be left with swine breeders themselves, while the adoption of rules requiring the animals competing for premiums to be judged by them will rest with the Fair Association managers. That the latter are glad to avail themselves of the help which breeders can thus render in the matter of determining awards, is shown by the very general favor with which the standard for Berkshires, as adopted by the American Berkshire Association, has been received.

Without a doubt each breed of swine should be judged by a recognized standard of excellence. In doing this, however, a good judge will not necessarily figure on paper to arrive at conclusions. His well trained eye will instinctively, as it were, find the best animal in the lot in less than half the time the points could be set down, and added with a pencil. A good judge and a good standard will almost invariably be found to harmonize.

In no other way than by judging by a standard can exhibitors and the public be so readily satisfied as to the justice of the awards. Any man of ordinary intelligence can be made to understand wherein his animals fall below a given requirement in a scale of points. It may be that owing to a peculiarly perverse nature he may not be willing to acknowledge it, but with the facts and the standard against him, he will not be very loud in expressing his dissatisfaction. The chances are ten to one he will go to work quietly during the ensuing year to correct his stock in those points wherein he finds it to fall when judged by the standard.

If the judgment be done by a standard, all who are interested in the improvement of stock are afforded an opportunity to learn the points of excellence as well as the defects. This knowledge is of value in the selection of stock at home for breeding purposes, as well as in buying abroad for like use.

In judging swine at fairs, the purposes for which they are specially designed should be kept in mind. Fat stock shows and agricultural fairs are not identical in their interests and the lessons to be drawn from their exhibits. At the former, the awards are intended to point out the animals best suited for the butcher's block; while at the latter the best animals for breeding purposes are supposed to be indicated by the awards. This being the case, it is altogether improbable that justice will be done exhibitors and their stock unless due regard be given the matter of pedigree in connection with the judging as regards outward appearance. The true worth of a hog for breeding purposes cannot be determined "at sight," regardless of pedigree and without inquiry as to his habit of growth, feeding capacity and other points which make one hog more profitable in this respect than another. It may be taken as one of the most encouraging signs of progress in stock improvement that inquiry as to pedigree, with a view of thereby determining value in point of growth and feeding qualities, is fast becoming a subject of marked importance with awarding committees at our fairs. Although all recorded animals are supposed to be pure bred, yet it is not claimed that all are equally well bred. Committees have, therefore, to determine relative values in this respect from a study of the pedigrees themselves and a knowledge of the ancestors represented in each. In doing this, they will bear in mind that the best pedigree is the one showing the greatest number of ances-

tors most perfectly adapted to the purpose for which they were bred; for the reason that an animal with such an ancestry will more surely mark its progeny with the desirable characteristics of its kind that one of a less positive and regular line of descent.

Definite and reliable knowledge of the breeding of animals can be most satisfactorily preserved and rendered available for use at fairs by a public registry of stock. The Illinois State Board of Agriculture was the first to show an appreciation of the advantage of having the purity of breeding of swine determined by some acknowledged authority. The Board itself is thus relieved of responsibility in a matter, which, as in horses, cattle and sheep, has become one of importance to breeders. The following has, therefore, become the standing rule governing entries in Berkshires at the Illinois State Fair:

"Swine in the Berkshire Class will not be recognized as eligible to entry unless they trace to animals recorded in the American Berkshire Record, or the exhibiter furnish in writing, at time of entry, equally satisfactory evidence as to the purity of breeding."

Other State and county societies have since adopted similar rules, much to the satisfaction of all who find it profitable to handle really first-class stock.

There can be no doubt that every breed of swine known and reared in this country would receive a like encouragement were the parties specially interested in them to determine for each a definite standard, or table of characteristics, and establish for each a public registry of pedigrees.

The condition of swine at the time they are judged should always be taken into consideration. As heretofore suggested, prizes taken at agricultural fairs are generally understood to be won by animals of superior merit as breeders, rather that by such as are best suited for immediate sale to the butcher.

It too often happens that the fattest animals win the prizes, when, if the truth were known, they are useless for any other purpose than prize-winners; their flesh not being even fit for conversion into hams and bacon, because of the unnatural course of feeding to which they have been subjected.

Excess of fat covers many defects; it retards full and perfect development in the growing pig; it renders him liable to disease and subject to injury in attendance at the fairs; and more than all, it lessens his usefulness in the future for breeding purposes. Overfed and highly fattened pigs particularly should not be encouraged in the show ring. As regards hogs of full age, it must be remembered that the finest looking animals, at two or more years old, may have had a very gaunt and unprofitable habit of growth when only nine or twelve months old. For this reason, it is well, in classes where it is usually found most profitable to fatten and sell at an early age, that some effort should be made to know whether or not the progeny of the aged animals being judged can be made ready for market at the early period desired. Superiority in the progeny, in a matter so important, should be duly credited to their aged sires or dams when being judged.

Reviewing the ground over which we have come, the results reached are found to be, first, that the judging should be done by experts; second, that it should be done by single judges, rather than committees of two or more each; third, that it should be done by carefully prepared standards of excellence; fourth, that in judging, the object for which the animals are designed should be kept in view; fifth, and lastly, that the condition in which the animals are shown should be duly considered.

Although the positions taken are believed to be correct, they may, in the opinion of some, be untenable, and therefore proper subjects for debate.

Undoubtedly the judging of swine at fairs is a matter of such importance that it should receive more than a passing notice at the hands of the Illinois Swine Breeders' Association. The standing of this association before the swine breeders of America is such that its teachings will receive immediate attention from all who feel interested in the subject. If at all within reason, they will be followed, and the interests of swine breeders will be advanced. If erroneous, they will fall to the ground.

HOG CHOLERA.

(Sty fever, or hog fever.)

An essay read before the Illinois Swine Breeders' Association, at Springfield, September 28, 1880, by Ezra Stetson, M. D., of Neponset, Ill:

The most formidable disease among swine at this day has the common name of "hog cholera." This name conveys no idea of the nature of the disease except its mortality, but it will probably be retained so long as the disease prevails in America. I prefer the name "sty fever," from the place of its origin, but I would be perfectly willing to adopt the name given by Prof. Law, "hog fever." Among the ancients all diseases of a contagious or malignant nature were called plague; and Fleming, in his "Animal Plague," London edition, 1871, gives numerous instances in which this, or a very similar disease, antedates the Christian era. It is no new disease that has been imported into America, but has prevailed from time immemorial in all countries where swine have been herded together in large numbers. Public attention was first called to this scourge in America, in 1856, by the great mortality among the hogs in a distillery at Black Rock, near Buffalo, N. Y., and within a short time afterwards the great distilleries of Ohio and Indiana were ravaged by the same disease.

At the present time it is computed that one-fifth of all the hogs raised in the United States succumb to this fell destroyer. As its ravages have principally occurred within the memory of the present generation, popular opinion has supposed this to be an entirely new disease. Old men, and myself among the number, well remember that half a century ago, the distillers at that time were not able to raise pigs profitably because the mortality among them more than counterbalanced the profit. Further, the distillers at that time were small affairs in comparison with those of the present day, and but a limited number of swine were then confined together. A few years since, a gentleman of more than ordinary intelligence informed me that this same hog cholera had prevailed in Hancock county, Ill., more than forty years ago. This is not at all improbable, as the same cause will produce the same effect the world over.

CAUSE.

The inquiring student will ever find that the first outbreak of this disease has occurred where large numbers of swine have been confined together, and that in all countries and under all circumstances where but few hogs have been kept on the same premises, they have ever remained exempt from hog cholera, except by communicated contagion. It is only in large herds that this disease has broken out *de novo*. This is a truth that cannot be disputed, and will stand in the crucible of fact against all the theories of the modern scientists. Now there are sanitary as well as planitary laws, and one of the sanitary laws that has long been known says that large numbers of men or other animals cannot be confined in a limited space without disease breaking out among them. The common name of typhus fever was for a long time known as camp fever. Ship fever, or jail fever, from the place of its origin. The cupidity of men gathers together large numbers of swine without much regard to sanitary laws, and hog fever decimates them at a fearful rate, and the loss is laid at the door of "Divine Providence."

That hog cholera, sty fever or hog fever, by whatever name it may be called, has originated *de novo* in a large number of instances, is a fact confirmed by many personal observations. In my own herd, nearly twenty years since, among my neighbors more than a score of times, and in each and every instance, there were large numbers of hogs at the breaking out of this disease. There are thousands of intelligent observers as well as sufferers that will bear me witness that it has broken out *de novo*, without the possibility of this disease being communicated to them from any source.

I am well aware that this teaching is diametrically opposed to a new-fangled notion that all contagious diseases are alone propagated by germs. But I venture the assertion that any intelligent man with a fair modicum of brain, will, if brought face to face with the tens of thousands of examples of this fever originating *de novo*, give up his pet germ theories and consign the microscope to its proper use—magnifying small things. The simple fact that this fever is first observed in the great majority of instances among the youngest or runts of the herds, should be satisfactory that it has broken out *de novo*, unless communicated by contagion, when the best or strongest are just as liable to be first attacked.

CONTAGION.

The property that certain diseases have of reproducing themselves we call *contagion*, and all such diseases are called, in common parlance, contagious. Our Congress, in its wisdom, made the magnificent appropriation of ten thousand dollars to be expended, under the direction of the Commissioner of Agriculture, for the purpose of investigating the disease of swine in these United States. This commissioner saw fit to delegate this work to persons who have not only not made this disease a study, but were wedded to a theory known as the germ theory of disease.

I have waded through this entire report, and can frankly say that, for all practical purposes, the money might just as well have been expended on the King of the Cannibal Islands.

As the report of these hog cholera commissioners has found its way to the people by an act of Congress, it gives their *dicta* an importance to which they are not entitled. There are various theories in regard to the real nature of *contagion*. In Great Britain all contagious diseases are grouped together, and classed as Zymotic. Contagion, from this standpoint, is supposed to increase and multiply after the manner of yeast fermentation. We all know that "a little leaven leaveneth a whole lump." In the same manner a contagious desease, under favorable circumstances, propagates itself *ad infinitum*.

Another class, who call themselves scientists, have invaded what they are pleased to call the germ theory of disease. By this we are to understand that the cause of all contagious diseases is a thing of life, and whether animal or vegetable, they are by no means a unit. This theory utterly ignores the spontaneous origin of any and all contagious diseases, and if we are to accept its teachings, there can be no such thing as a contagious disease originating *de novo*.

These diseases cah only be propagated by pre-existing germs. Now the only original idea, picture or thing that can be found in the report of these commissioners is the invention and picture of *a baa silly-cus?* See page 53, Special Report No. 12, Department of Agriculture, 1879; Special Report No. 22, from the same department, page 69, 1880, and also Report of the Department of Agriculture, 1878, page 362, *ad nauseum*. The author has the audacity to call in question the recognized authority of the editor of the work on the microscope, and on whose teaching the whole world relies, Sir Lionel J. Beal. This same author has also published a work on "Disease Germs, their Nature and Origin," London, 1872.

On page 71 of this work Dr. Beale says:

"From the fact that bacteria grow and multiply not only in a few special fevers, but in a great variety of morbid conditions, it is evident that they (bacteria) have nothing to do with any particular form of disease. All attempts to demonstrate various constant species of bacteria, representing different contagious diseases—and many attempts have been made—have completely failed. All the efforts of this author with the microscope, as well as his treatise on "Disease Germs," have been to prove that bacteria in their various forms have nothing to do with the propagation of contagious disease."

On page 257 of the same work Dr. Beale says:

"In certain forms of erysipelas, purulent ophthalmia and analogous contagious diseases, which sometimes originate in an isolated population;" and further on in the same page: "And the same reasoning leads to the inference that the generation of the poison of many contagious diseases, and all contagious fevers, occur in the same way. It is certain that many cases of blood poisoning and various forms of idiopathic fever depend upon the passage into the blood, and its dissemination through the system of a poisonous bioplasm which has been generated in the body."

Here this microscopist and germ theorist is forced to admit that contagious diseases may, and sometimes do, originate *de novo*. In plain English, the virus or poison of a contagious disease may be secreted and carry the same contagion to others, and be thus *ad infinitum*. This admission, coming from Dr. Beale, the best and highest authority on the microscope, should have more weight than the mere *ipse dixit* of one who is a tyro in the use of the microscope, if not a charlatan V. S.

The Cure.

This being an idiopathic fever, it is in vain to think that any remedy will cure all or any cases of this disease. As was said by Lamartine, "Medicine only amuses the patient, while nature effects the cure." This amusing a hog would be a nice business. There never has been discovered as yet a specific for any disease. As no such specific has been vouchsafed us, the mountebank and charlatan are ever with us, always ready to prey on the ignorant and superstitious, and, as a rule, the more incurable the disease the more brazen the pretender. At this time a certain class of journals are filled with the said "ads" and puffs of a hog cholera remedy. These same journals would hardly dare to do so if a statement of the component parts of the remedy accompanied each package; neither could men be hired or bribed into giving certificates of such trash if the ingredients were known to them, or the public, either. As has been well said,

"The pleasure of cheating is as great
In being cheated as to cheat."

I will myself guarantee the life of one hog for a year if my instructions are fully carried out, viz: Keep but one hog in a pen at least one mile from any other hog; change his quarters the same distance every day, and you may feed corn and cold water at pleasure. I shall have no occasion to refer to my bankers for the insurance money. Seriously, the only infallible remedy for this disease is cold lead or the knife.

PREVENTIVE.

The old proverb is that "an ounce of preventive is better than a pound of cure." As this disease is one generated by numbers, the fewer that are kept together the less the danger, and then the danger from contagion is very much lessened. This word contagion is a great stumbling block to the non-professional, and even the profession can give no satisfactory reasons why persons or animals equally exposed to the same contagion, shall not be an equal sufferer. I have personal knowledge of a man having varioloid-modified small-pox in so mild a form that neither himself nor any one else suspected the disease, and had he not communicated small-pox to his own and one other family out of the hundreds equally exposed, no one would ever have been the wiser. So hog cholera has its outbreak of mildness and malignity; in one herd it may be many weeks or months before the disease is recognized, and in another the whole herd may be nearly decimated in a few days. It has been satisfactorily reported to me that 40 fat hogs out of about double that number have died in a single night. I am asked in this connection, how shall this disease be recognized. My answer is, by the mortality and the thermometer. Fever means to be hot and the only correct amount of heat in disease is measured by the fever thermometer.

No one disease affecting the human family is more universally regarded as contagious than the small-pox, and yet there are and have been persons small-pox proof. To-day, hog cholera is so generally known and acknowledged to be contagious that I do not believe a single person can be found who possesses ordinary intelligence that would be willing to try the experiment of introducing a hog sick of this disease into his herd of healthy ones. One of the great necessities of the successful raising of swine is the imperative need of statute laws governing the traffic in diseased and dead hogs. Leaving out the moral abomination of selling sick hogs, the dead hog peddler is one of the most dangerous of reprobates. He it is that fattens on the losses of others and has all the ability and incentives to propagate this disease, and is quite successful in his vocation.

Should I ever be placed on trial for manslaughter, it will be for the taking off of some one of this calling. There is no method of disposing of dead hogs so safe and effectual as cremation, and in the long run it will be found much the most profitable. A very little kerosene poured over a dead hog with a small amount of fuel will place his remains beyond the cupidity of the dead hog buyer, and out of the reach of dogs and other animals that would be likely to scatter the contagion. Another safeguard consists in keeping persons having the care of diseased hogs away from hogs not diseased. A morbid curiosity to see and prescribe for sick hogs has often been the means of conveying the disease to herds that would otherwise have escaped. If a tithe of the precautions were taken in shunning this disease that there is in the case of small-pox, a very large percentage of the present mortality would be avoided. "Neglect of sanitary laws," is the chief factor in generating this fever, and no instance can be found where it has originated *de novo*, unless there has been a palpable violation of these laws. The massing together of large numbers of hogs always has been and ever will be the most fruitful cause. In more than one instance have I known this disease to originate from hogs being confined to the drinking of water from shallow ponds, surface water and also to their being confined to the drainage of manure heaps. It is just as necessary for the hog to breath an untainted atmosphere and have pure water to drink, as it is for the human family. This disease only originates from neglected sanitary regulations, and like its congener in the human family, the typhus fever, will become with proper hygiene a thing of the past. But this happy day we can hardly expect so long as the greed of men survive. A hog wants something besides food, he must have pure air and a well ventilated apartment, with pure water, and not the stagnant water of his own cesspool. There is death in bad air, and impure water is not safe for even a hog to drink. So long as hogs can be made a source of wealth they will continue to be raised in large numbers in the great corn belt of the Mis-

sissippi Valley. There is no great reason why America should not supply the old world with meat and at a less price than it can be produced there. In this land of plenty we can hardly appreciate the great want of cheap meat of laborers of the old world. I have heard many of them say, at Christmas season was the only time in the year when butchers' meat was taken into their households. If it were not for the ravages of this disease it would take but few years for hogs to so increase in numbers that the markets of the world would be flooded with swine flesh, and the price depressed accordingly. There seems to be a law of compensation as well as of supply and demand, and while we are all scrambling for the mammon of this world, it seems eminently just that every man should have an equal chance either in digging for gold or in raising hogs.

Carbolic Acid.

Some twenty years since, my attention was called to the report of the Cattle Plague Commissioners appointed by the Privy Council of Great Britain to investigate the disease. The very best medical as well as veterinary skill was here brought into requisition. Leaving all their theories aside, the only practical result of their labors was that the use of carbolic acid was the chief, if not the only remedy to be depended upon in arresting the spread of this disease—quarantine regulations excepted. It would throw no light on hog fever to give merely a synopsis of their sayings and doings; neither would a therapeutic dissertation upon the use of carbolic acid be in place. Suffice it to say that this acid by universal consent is recognized as the most effectnal agent in preventing decomposition, as well as fermentation. Take whichever view you please of the virus of contagium, whether by vegetable germs (seeds) of bacteria, animal germs or bioplasm of Dr. Beale (if any one knows what this word means), or the more sensible one of the great majority of practitioners of medicine, that the contagious principle of contagious diseases is a virus or poison that multiplies itself after the manner of yeast fermentation, and is thus called zymotic. All contagious diseases in Great Britain are classified as zymotic by M. D.'s and V. S.'s.

As nothing ever did or will exist without an adequate cause, there must be a cause for hog cholera.

Now, if the cause can be effectually destroyed, all danger will be avoided, and the swine-grower can have reasonable security that his herd will be protected. I am not prepared to say that such an infallible antidote has been discovered, but this I can say in all good conscience, that during a period of 15 years or more I have been in the constant habit of giving my hogs carbolic acid to prevent this disease among my own hogs, and that thus far I have escaped beyond my most sanguine expectations. I do not say that this disease has not broken out, but if so it has been in so mild a form, and the losses have been so trivial, that no one but a person on the constant lookout would ever have suspected disease. I have used the various preparations of carbolic acid, and for the past few years, only the crude acid, which contains not only carbolic acid, but all the other uncrystallized acids of coal tar. This crude carbolic acid is of about the color and consistance of pine tar. From long use I am satisfied that it has the same or equal prophylactic virtues as the crystallized acid, and at much less cost. I purchase by the gallon, and give it to my hogs in the water they drink. I suppose it is possible to give it in poisonous quantities, but my experience teaches me that there is little or no danger to be apprehended on that score. For more than a score of years, my hogs got their water from what is known as a hog waterer. This is made by connecting two barrels with gas-pipe, and feed from a reservoir higher than the barrels. To prevent the water overflowing in the barrels connected with the reservoir, it is supplied with a valve and float which will control the water to a desired height. The agents of many of these patented contrivances will only be too glad to give and sell all appliances for putting them in place. Into the barrel, with the float, I introduce a pint or more of the crude acid as often as once a month, if 100 or more hogs drink from the barrel. The water, in its passage from the fountain through the barrel with the float to the barrel from which they drink, keeps their drinking water constantly impregnated with the acid, and is an evidence that it is not exhausted. I endeavor to have this scent constantly in the drinking water, and fresh additions are necessary to keep it up. As eternal vigilance is the price of liberty, so fresh additions of the remedy are necessary to ward off an outbreak of this disease. One man can hardly remember to do everything at the proper time, and occasionally I have myself been a delinquent in this matter. But in case any suspicion was aroused, the remedy would at once be administered, and always with satisfactory results. In the absence of such a watering arrangement, the acid may be given in their water or swill trough. If a small quantity is given each day, no harm will be done, but as often as once in each week it is imperatively demanded. The quantity of the acid for a single hog never entered into my calculations. I should think a tablespoonful or half an ounce for ten hogs would be sufficient, and my own hogs get very much less.

The papers were generally discussed, and much practical information was elicited thereby.

The following resolution was adopted:

Resolved, That the thanks of the Association are hereby tendered to Dr. Ezra Stetson and Phil. M. Springer, Esq., for the practical and instructive essays read at this meeting, and that the papers be published in the annual report of the Association.

Mr. Bryant introduced the following resolution, which was adopted:

Resolved, That the Illinois State Board of Agriculture be requested to employ expert committeemen to pass upon the swine exhibited at the State Fair, and that single judges are preferred by swine breeders.

Motion of Dr. Stetson carried,

That a committee be appointed to prepare and present a memorial to the General Assembly, asking the passage of a law in regard to the traffic in dead and diseased hogs.

President appointed, as said committee,

Dr. Ezra Stetson, Neponset.
Dr. J. Simpson, Carrollton.
Phil M. Springer, Springfield.

Motion carried,

That the Association proceed to the election of officers for the ensuing two years.

The following were elected:

OFFICERS.

President—Charles F. Mills.....Springfield
Secretary—A. J. Lovejoy.....Jacksonville
Treasurer—B. F. Dorsey.....Perry

VICE-PRESIDENTS.

1st	district—	John Wentworth	Chicago
2d	"	C. M. Culburtson	Chicago
3d	"	A. Z. Blodgett	Waukegan
4th	"	W. W. Ellsworth	Woodstock
5th	"	A. J. Countryman	Rochelle
6th	"	E. W. Bryant	Princeton
7th	"	Charles Snoad	Joliet
8th	"	H. C. Castle	Wilmington
9th	"	J. H. Anthony	West Jersey
10th	"	A. P. Petrie	New Windsor
11th	"	B. F. Dorsey	Perry
12th	"	J. W. Boston	Jacksonville
13th	"	W. M. Smith	Lexington
14th	"	A. J. Alexander	Charleston
15th	"	E. H. Bishop	Effingham
16th	"	J. T. Buchanan	Mulberry Grove
17th	"	David Gore	Carlinville
18th	"	A. M. Brown	Villa Ridge
19th	"	E. S. Wilson	Olney

EXECUTIVE COMMITTEE.

Charles F. Mills, Springfield.
E. W. Bryant, Princeton.
J. Simpson, Carrollton.
Ezra Stetson, Neponset.
David Gore, Carlinville.

On motion,

The Executive Committee were authorized to prepare programme for the next annual meeting.

On motion,

The Secretary was instructed to present the minutes and papers to the Secretary of the State Board of Agriculture, and request the publication of the same in the next annual report.

On motion, adjourned till Tuesday evening of the week of the State Fair for 1881.

CHARLES F. MILLS,
President.

A. J. LOVEJOY,
Secretary.

ILLINOIS WOOL GROWERS' ASSOCIATION.

ANNUAL MEETING—1880.

STATE FAIR GROUNDS,
SPRINGFIELD, ILL., Sept. 29, 1880.

The Illinois Wool Growers' Association was called to order at 8 o'clock P. M., in the office of the President of the State Board of Agriculture, by President A. M. Garland.

The report of the Secretary for the last meeting, and the business intervening through past year, was read and approved; also the verbal report of the Treasurer accepted.

Committee on classification reported through the chairman, Chas. F. Mills, that the State decided to appropriate the same amount of money as in 1879, but did not recognize the judging by experts as a wise measure.

On the judging by experts and using the scale there was considerable time consumed in the discussion. Mr. F. E. Day, of LaSalle county, said that at the National Sheep Show, at Philadelphia, sheep were judged by experts, and the scale adopted by this association was used in great measure.

Mr. Day moved that a committee be appointed to ask the State Board to adopt "our scale of points" for each class, as passed by this Association at the meeting of 1879.

Mr. R. M. Bell, of Jersey county, seconded the motion, and believed a scale of points was absolutely necessary for correct judgment.

Mr. B. F. Dorsey, of Pike county, endorsed both the scale and judging by experts, both then and now.

Mr. McFadden favored both measures.

The President thought the little additional expense to the State Board should not be considered.

Mr. James Cotton, of Winnebago county, would rather have his sheep judged by experts and scale.

After further remarks, all favorable to the motion, the question was called and carried.

At the last meeting of the State Board a diploma was offered for fleeces of wool. This, after some discussion by this Association, resulted in a motion that the State Board of Agriculture be asked to offer a money premium instead of a diploma, which motion was duly seconded and carried.

Motion that a committee, consisting of A. M. Garland and Chas. F. Mills, be appointed to present the foregoing motion to the State Board at the January, 1881, meeting, which motion passed in usual order.

Mr. Dorsey at some length spoke of the employment of experts in judging sheep, and finally offered the motion that we deem it advisable that we employ six experts, one for each class, for the separate rings, and one for the sweepstakes in each class. The motion was seconded, and passed.

Mr. Bell talked at some length on the propriety of dividing the present amount of money paid in two premiums into three premiums, which resulted in a motion that the State Board be requested to divide the money now paid on two premiums on sheep into three premiums. Motion seconded and carried, with instruction for committee on presenting previous motions be requested to care for this and all others that may follow during the course of the meeting.

Mr. G. W. McFadden thought a reduction might, with propriety, be made on other Fair exhibits, and the sheep premiums increased.

Mr. Mills spoke at some length, and with great interest to all present, on the propriety of our working more for ourselves and asking less of the State Board of Agriculture. The sheep interest has become an important industry in our State, and the Wool Growers' Association should show that they have an interest in that industry by their acts, and therefore proposed that the Association offer three silver cups at the next State Fair for flocks of sheep of the three different families, and that a subscription be started now for the money to pay for the cups. The subscription was immediately responded to as follows:

Charles F. Mills	$10 00
John Turnbull	10 00
James Cotton	10 00
Thomas Taylor	10 00
M. C. Brownlee	10 00
F. E. Day	10 00
V. P. Richmond	5 00
R. M. Bell	5 00
G. W. McFadden	5 00
	$75 00

After considerable discussion the number composing a flock was decided to be, of Long-wool, 3 ewes 2 years old, 3 ewes 1 year, 3 ewe lambs and 1 ram, age not considered; of Downs, 3 ewes 2 years old, 3 ewes 1 year old, 3 ewe lambs and 1 ram, age not considered; of Merinos, 5 ewes 2 years old, 5 ewes 1 year old, 5 ewe lambs and 3 rams, one 2 years old, one 1 year old and 1 ram lamb. The Down flock must be all Southdown or all Shropshire downs, and so on.

Motion to adjourn until to-morrow (Thursday) evening, 30th inst., at 7:30 o'clock. Carried.

THURSDAY EVENING, September 30, 1880.

The adjourned meeting of the Illinois Wool Growers' and Sheep Breeders' Association was conducted with A. M. Garland in the chair.

Mr. Teeple offered remarks on the dilly-dally manner of getting on the fair grounds with stock,—some coming on Monday and others on Wednesday, saving two or three days time and expense to the tardy ones.

Mr. Cotton said in England experts were used, and all the premiums were awarded on the first day of the fair, and a daily parade of prize stock made at a certain time each day of the fair.

Mr. Morgan said this plan would give entertainment to visitors, and they would then come early in the week, insuring a larger attendance, thus increasing gate fees.

Mr. Cotton offered a resolution, that for the purpose of securing promptness in exhibiters with their stock, that it is the sense of this Association that all premiums on live stock should be awarded on the second day of the fair. Carried.

Mr. Dorsey suggested the meeting discuss the trouble flockmasters have with lambs, known as worms, and which has been so disastrous to many this year.

Mr. Morgan said: It is a parasite—worms—and lives upon the blood of the animal, and went by different names, paper skin, pale disease, etc. It was pale disease because the parasites, the worms, took all the blood and there was none to make the skin red. As a remedy, he said, keep the lambs off of old pastures and not allow the lambs to go on to pastures early in the morning, while the grass was wet with dew, as the worms were on the grass while it was wet, and the lambs took them in their stomach while feeding. As the grass dried they went to the ground and out of the way of the lambs.

When lambs were affected, use a mixture as follows: One pint castor oil, three pounds pine tar and one pint turpentine; give this with a swab, slowly put into the mouth; about a tablespoonful for a grown sheep, less for a lamb, for three mornings, and then rest three mornings; then give it two mornings if they were better, and then rest two mornings; then one dose every other day for a few days, until symptoms disappear. Always give on an empty stomach. He had used turpentine and coal oil equal parts and linseed oil three parts. Dose, small tablespoonful to very weak lambs; more to stronger ones. He had been very successful by keeping lambs on fresh pastures, and feeding bran and oats. The parasites get into the blood and stop in the heart, lungs, brain, liver, kidneys and all parts by thousands. He thought Cotswolds suffered more by these parasites, and that no cross of Downs were affected by them.

Mr. Graham instanced a man who had trouble with all the crosses.

Mr. Brownlee, in 1877, out of 197 lambs, lost all but 95. They began by coughing. In two or three weeks they began to die. By the aid of a physician, post mortem examinations showed the air cells of the lungs packed full of worms from an inch and a half to three inches in length. In the bowels he found tape worms. A

receipt from Prof. Law saved his lambs. It had saved his neighbors' lambs successfully, also. Mr. Brownlee, Monmouth, Ill., will send the receipt to any desiring.

Lambs affected with black discharges in scours is caused by a worm, and Morgan cures certainly with his remedy, given above.

Foot-rot cures were discussed. Sulphur, copperas and salt to breeding ewes, was strongly recommended as safe and necessary to health.

Mr. Strawn asked for information. His lambs come strong and healthy, and in three or four weeks become lame in one leg and then in another, and usually died. Was it from feeding sulphur to his ewes?

Mr. Morgan said it was rheumatism, and could be cured by giving acconite in homeopathic doses.

Grub in the head was said could be cured by injecting carbolic acid, in weak solution, into the nose.

The flock premium was taken up, by a motion from Col. Mills that the cup premium be to the world, which was carried.

A motion carried that a breeder who can take the cup a second time shall keep it.

Adjourned, to meet at the State Fair grounds, Wednesday evening, during the Fair, at the room of the President of the State Board of Agriculture.

A. M. GARLAND, President.

R. M. BELL, Secretary *pro tem.*

ILLINOIS TILE-MAKERS' ASSOCIATION.

SECOND ANNUAL MEETING.

ROOMS DEPARTMENT OF AGRICULTURE,
SPRINGFIELD, January 20, 1881.

TWO O'CLOCK P. M.

Meeting called to order by President J. K. Reader, of Auburn.

The Secretary being absent, T. E. Chandler was made Secretary *pro tem.*

Minutes last meeting read and approved.

After the reading of the constitution, a number of gentlemen presented their applications for membership.

On motion, the following gentlemen were made honorary members of the Association:

Hon. S. D. Fisher, Secretary State Board Agriculture.

Charles F. Mills, Assistant Secretary State Board Agriculture.

Hon. H. D. Emery, Prairie Farmer, Chicago.

Hon. J. J. W. Billingsly, Drainage Journal, Indianapolis, Ind.

On motion, the President was authorized to appoint the following committees:

1. Resolutions.
2. Best means for creating demand for drain tile.
3. Manufacture and sale drain tile.
4. Order of business—Programme.

President appointed following committees:

1. Resolutions—Messrs. A. Horrocks, McCullough, J. J. W. Billingsly.

2. Means for creating demand for drain tile—Messrs. Craig, Chandler and Emery.

3. Manufacture and sale drain tile—Messrs. Kemp, Straight, Landrum, Keiser and Pinkerton.

4. Order of business—Programme—Messrs. Craig, Easter and Emery.

The committee on programme reported the following questions for discussion.

On motion, the report of the committee was received, and adopted as follows:

1. How can manufacturers best meet the demands for drain tile?
2. How hard should tile be burned to make them durable?
3. How can lime be removed from clay?
4. Water-smoking kilns.
5. The best way to burn tile.
6. Best materials to mix with clay to prevent cracking in drying or burning tile.
7. Is it profitable to dry tile with artificial heat?
8. The best kiln for burning drain tile.

On motion Mr. Kemp,

The Association proceeded to the election of officers for the ensuing year, with the following result:

President—J. K. Reader, Auburn, Ill.
Vice-President—A. H. States, Cornell, Ill.
Secretary—Samuel Anderson, Taylorville, Ill.
Treasurer—A. Horrocks, Bardolph, Ill.

On motion, Art. 3 of the Constitution was amended to read as follows:

ARTICLE III—MEMBERSHIP.

All persons interested in the manufacture and use of drain tile or brick, and in furthering the use thereof, excluding all from becoming honorary members who may be representing inventions for manufacturing, burning or ditching, shall be eligible to membership, and may become members, by signing the constitution and paying one dollar.

Mr. Chandler introduced the following resolution, which was, on motion, adopted:

Resolved, That no person shall be allowed to consume the time of the Association by advocating the advantages of any particular device in which he may be pecuniarily interested, except it be by the sufferance of the Association, and at their request.

On motion, the discussion of questions submitted by the committee on business was made the special order.

How hard should tile be burned to make them durable?

A. Horrocks: Tile should be burned until they unite or fuse.

J. R. Kemp: To prevent disintegration, it is hardly necessary to burn tile so hard. Tile should be burned so they will not melt down. Drain tile need not be burned so hard if they are not exposed to the frost except at the outlet. Brick burned too hard, if exposed to the frost, will scale off. Some clays need to be burned harder than others. Tile, if burned enough and laid down out of the reach of frost, will do good service for our great-great-great-grandchildren. Tile should be burned until it has a bell-like metallic ring.

A. Horrocks: Some of our farmers bury tile half under ground to test their durability by the frost.

Mr. Pinkerton: Farmers will not bury tile that has been burned too hard. If tile has not the metallic ring, it will melt down.

Mr. Kemp: There is a difference in clay; some will ring that are not well burned; some clays well burned will not have the ring, yet be good tile.

Mr. McCabe: My experience is the same as that of Mr. Kemp. The first kiln of tile I made were not well burned. The farmers tried the ring and pronounced them good, but, when exposed, they crumbled.

Mr. Morrison: All seem to agree that there is a difference in the clay, may not the soil possess chemical elements that disintegrate the tile. Alkali decomposes stone, why not drain-tile.

Mr. McCabe: I sold brick to make drains before manufacturing tile—the brick were burned to a cherry red and withstood the action of the frost. Any good clay well burned is good enough for tile.

Mr. Kemp: It certainly cannot be that there is only a certain kind of clay suitable for tile. Any clay well burned will make good tile.

Mr. Morrison: I only referred to the clay that the tile were laid in.

Mr. Horrocks: Any clay well burned is good enough. Farmers in my section will not buy anything but good tile.

Mr. Craig: My father burned his tile with brick. They were so soft that it was necessary to haul them with straw or hay in the wagon bed. After twenty years they were taken up and found to be good.

Tile put down deep enough in the ground need not be burned so hard as many think.

Mr. La Tourrette: Tile well burned and put in the ground to a depth of three or four feet, after many years seem to be hardened. Tile should be burned hard enough to cement them. Some clay needs more care in making and burning than others. Some say, stone will dissolve in the ground, but I have yet to learn it.

Mr. Kaiser: I laid tile as soon as I could get them—seventeen years ago—the tile were from Whitehall, of different colors. I always selected tile that were not so hard burned. A year ago I took the tile up and they were as good as when first put in.

Mr. McCabe: Fifteen years ago I made a gentlemen some brick with a groove. When two bricks were placed together, the grooves facing each other, they made the drain, and when taken up years after they were as good as when put down. Some soft tile that I made, crumbled here and there, which we know by the water rising at that point.

Mr. Kemp: Some clay will not unite and will not stand, and the peculiar nature of the clay must be considered.

Mr. Landrum: It appears to me that any tile-maker of two or three years' experience, ought to know how hard to burn his clay if he has observed closely. Some say, that fire clay requires too much heat to unite in burning; but that is a mistake. Clay should be burned hard enough to unite.

Question—"How can lime be removed from clay."

Mr. Kemp: There are two methods. If the lime particles are small, crush them; if large, wash them out and crush them, too.

Mr. Morrison: In some of my clay the particles are large and slack, injuring the tile. By crushing they are made small, not injuring the tile.

Mr. Chandler: The crushing is a very good method, but I do not know what he means by washing.

Mr. Kemp: The clay is separated from the lime by washing

Question—How to water-smoke kilns.

Mr. Morrison: Water-smoke slowly for twenty-four hours, and raise heat gradually. Tile crack if the heat is raised too fast. Time is not so much an object in burning as good ware.

Mr. Chandler: Water-smoking is removing the water from the tile; if done too fast, the outside contraction will cause the surface to crack. The same is true of drying brick.

Mr. McCabe: I have no trouble about my tile splitting. You cannot get tile so dry but what they will water-smoke. Tile may set in the drying shed all winter, yet they will water-smoke.

Mr. Turner: If I can have a good draft, there is no trouble. I set tile on top of kiln sometimes to create a draft, and they crack badly. Have a small fire until you get a good draft.

Mr. Kemp: Mr. Turner is right—too much heat will stop the draft.

Mr. Gooding was requested to describe his kiln.

Mr. Gooding: I have a new kiln, but will not recommend it until I know more about it.

Mr. LaTourrette: My experience is that clays are very different in water-smoking. Some require less time than others, and different management. It is all being acquainted with the clay.

On motion, adjourned to meet to-morrow morning at 9 o'clock.

MORNING SESSION.

JANUARY 21, 1880.

Association met as per adjournment.

President Reader in the chair.

On motion of Mr. Craig,

Speecher were limited to five minutes, and no member allowed to speak more than twice on the same subject.

Committee presented bill for printing, amounting to $28.75, which, on motion, was ordered paid.

Discussion of subjects resumed.

Question—The best way to burn tile.

Mr. Horrocks: We use coal because it is cheaper for us. Use down-draft kiln; can use a boy to burn; does not require the same experience as with open top. The heat in down-draft is more evenly distributed. Would prefer the down-draft, except in large kilns, for brick.

Mr. Craig: The question is, how to proceed in burning, not the best kiln? I am not an experienced burner. The secret of success in the manufacture of tile is in the burning. If we fail in burning, the whole work is lost.

Mr. Morrison: My experience is limited to the use of an open top kiln, with the Wingard attachment. We burn mostly brick in a large kiln, and tile with brick in a small kiln. Our loss in burning 75,000 tile last season was about two per cent., which loss was attributable in part to cracks, the tile otherwise being sound. We dry with coke, and raise the heat very slowly for twenty-four hours. I am in no hurry to settle the kiln until well heated all over.

Mr. Kemp: I have had experience for thirty years, and would say that the different clays require different treatment. Would advise all tile and brick burners to go slow.

Mr. McCabe: I have had an experience of thirty years, and find that all clays do not require the same treatment. Some clays will melt if heated too high; some require more time than others. Have used square kilns, but do not like them. I now have a round-crown, down-draft kiln, and like it.

The committee appointed to consider and report upon the best means of increasing the demand for drain tile, reported as follows:

Illinois Tile-makers' Association:

Your committee recommend as the best means of creating a demand for tile, thorough work in drainage, so as to secure the largest benefits for the money expended.

Thorough work embraces the following important points—a good outlet, deep drains, evenly and regularly graded and carefully laid well-burnt tile:

1. The work, from the beginning, should look forward to a full completion.

2. That tile manufacturers gather all the facts they can conveniently as to the benefits derived from drainage, and communicate them to standard publications, and also the local press, for publication.

3. That the Illinois Tile-makers' Association should heartily coöperate with the State Board of Agriculture in their efforts to educate the general public as to the important benefits resulting from drainage, and that members of this Association should promptly report to the State Board all facts and such statistical information as will aid the Board in their efforts in this direction.

4. Your committee would recommend an advance all along the line in the way of educating the public mind in the direction of this most important improvement in agriculture, as the best means of increasing the demand for drain tile.

Respectfully submitted.

A. HORROCKS, Chairman.

On motion, the report was received, adopted and the committee discharged.

The report of the committee was commented upon as follows:

Mr. Billingsley: The importance of this subject, as it relates to drainage, can hardly be over-estimated. It is vain to manufacture tile unless you can find sale for them. The demand is the bed-rock of success in this business. Men are not going to buy tile unless they are convinced that the investment of their money in drainage will pay, nor are they to be convinced unless you lay before them well-established facts that the benefits to be derived will pay. What a work the 320 tile makers of Illinois could do if they would put into the hands of the people the necessary reading matter. Each one of you could give instances coming under your own observation that would excite attention. They might not believe the first, but pile well authenticated statements as high as you can do on top of one another, and very soon they will be convinced as to the importance of drainage.

Neither can you expect good sales until your customers are educated.

Your State Board of Agriculture is doing a noble work in this direction; but is it not a shame that so many tile manufacturers

will not report when requested by the Board? Out of 108 who reported last year, 40 of them have failed to report so far this season. Gentlemen, gather up the facts and hand them over to the State Board of Agriculture—to the papers published in this interest; give them to your local press—they will be glad to publish the facts; such matter will build up their circulation and increase your business. Sow the seed broadcast. You have the facilities, if you will only use them, of creating all the demand you can supply.

Mr. A. Lyon: I have heard farmers talk about drainage, and they don't see how water gets into tile—don't see what good it does to drain—if you drain out a pond it will run out at the cracks of the tile—won't do a bit of good. I have offered to furnish the tile, and if it did no good, would ask no pay. Then they ask, who will pay for digging the ditch? Some do not see how the water will get into the tile, unless the upper end is open.

I have offered facts to the press, but they refuse to publish them, because it would be advertising my business, and ask me how much I would be willing to pay; but if somebody steals a cent, they can publish column after column of trash about it. I have to go off to localities where they are draining to get sale for my tile, and sell all that I can make in this way.

Mr. Morrison: The rich man in Hades wanted to go back and warn his friends. Perhaps the gentleman comes on this mission to us, so we may avoid his section of the State. If they will not believe Moses and the Prophets, how can we reach them?

Mr. Lyon: My neighbors are good people—some of them good farmers—but they don't know anything about drainage.

Mr. McCabe: My experience is, if we can get men to read and investigate, there is no trouble to sell them tile.

Mr. Lyons: Some will say their clay is too tight, the water can't get through it to the tile; draining won't do any good.

Mr. Landrum: The remarks of the gentleman convince me that we need to give more importance to drainage as a means of ventilation to render the clay easily pulverized.

Committee on manufacture and sale of drain tile reported as follows:

To the Illinois Tile Makers' Association:

GENTLEMEN: The manufacture and sale of drain tile covers the entire ground and all the interests of the members of this Association.

In order to increase the sale of drain tile, it is recommended that the demand be increased in the vicinity of tile factories by informing farmers of the advantages and increased profits resulting from tile drainage.

One of the best means of accomplishing this end is the circulation of printed matter, giving the practical and profitable results of tile drainage.

The introduction of a good ditching machine, that will reduce the cost of laying the tile.

The sale of inferior tile should not be permitted, and tile makers should be satisfied with a reasonable margin of profit and oppose anything bordering on the cut-throat practice of reducing prices to obtain another manufacturers legitimate trade.

In reference to the manufacture of tile, the committee would recommend that only first class goods be made, and to secure that object the following matters should be considered:

1. The thorough equalization and soaking of all clays for at least 48 hours, or longer should the nature of the clay require it.
2. The crushing of all clays.
3. The use of platform cars or trucks for transferring tile from the machine to sheds, and from the sheds to the kiln.
4. That all tile should be dried on end.
5. That all tile be thoroughly dried before being set in kilns for burning.

6. That after the tile are set in kilns they should not be taken out until they are thoroughly burned.

7. That the clays in any locality suitable for drain tile are recommended, from the common red clay to the finest grades of potter's clay.

8. Would further recommend that each tile maker adopt such methods of discharging tile from the kilns as may be found most practicable.

Respectfully submitted,

J. R. KEMP,
R. C. STRAIGHT,
J. E. LANDRUM,
JOHN M. PINKERTON,
JOHN KAISER,
Committee.

The consideration of the report brought out the following discussion, after which the report was adopted:

Mr. Lyon: Recommended no cutting in prices of tile. Sell them as low as possible and be content with reasonable profits. The best competition is to make better tile. I have to ship my tile off where people want to drain their lands.

Mr. Kemp: It is of the first importance to secure the sale of tile. There is no use to make tile unless they can be sold. The committee were unanimous in recommending the use of a ditching machine to reduce the expense of drainage. The cutting of the ditch is the most serious obstacle in the way. The Governor of Indiana has a large tract of land that needs draining, but fails to do so on account of the worry in hiring and boarding hands to cut the ditches.

Mr. Pinkerton exhibited a rack for drying tile on end, which he thought was a good thing, and stated that any one was welcome to use it.

Mr. Craig: All have their arrangements for drying, and would not change simply because a neighbor uses a different plan. He dried large tile on end and small tile on sides, with good success.

Mr. Morrison: Tile will dry better on end than in any other way, and it is the most economical method. Have tried drying by artificial heat with good success, and have dried green tile in forty-eight hours.

Mr. Kemp: All things being equal, I think that drying tile on end is preferable.

On motion, the Association adjourned until 1:30 P. M.

AFTERNOON SESSION.

The Association met as per adjournment.

Vice-President Straight in the chair.

The discussion of the subjects named in the programme was resumed.

Question—Best materials to mix with clay to prevent cracking in drying or burning tile?

Mr. Dawson: We mix saw-dust with common prairie clay, which we find of great advantage.

Mr. McCabe: Joint clay cracks badly, and I have no confidence in any admixture that may be used therewith.

Mr. Dawson: We use common clay for bricks and have no trouble; have better success than with deeper clays.

Mr. Nunes: I hardly understand what joint clay is. Mr. Dawson's clay is not the same as my clay.

Mr. McCabe: I think no man can make good brick out of joint clay.

Mr. Nunes: I have what is called joint clay and I want to know how to handle it.

Mr. McCabe: My clay is from barren land, of a cream color on top, underneath the first clay it is yellow, and when spaded up it drops to pieces.

Mr. Long: I use joint clay, but it has sand in it and works well.

Mr. Dawson: Our clay has sand in it but does not stand drying in the sun.

Mr. Straight: There is a great difference in joint clays. My clay is joint and works well for tile but does not make good brick. I tried timber-joint clay to my sorrow; the tile made therefrom crumbled badly. I think sand and coal slack mixed with the clay will benefit it.

Mr. McCabe: I have tried different mixtures, but without success.

Mr. Nunes: If my clay is moulded by hand it works well.

Mr. Landrum: I have been informed that no joint clay is free from sand or any mixtures that would make good brick; that the only remedy is to use sand.

Mr. McCabe: Two years ago an experienced German came into my neighborhood and used joint clay to make brick. He tempered it lightly with a spade and made as fine brick as I ever saw. The less joint clay is worked the better.

Mr. Anderson: I use joint clay in Martin's soft mud machine with success.

Mr. Lyon: I saw some parties working clay; it was run through the crusher almost dry; it was sprinkled as it went through the mill; the tile came out almost dry, and when burned made good tile.

Question—Is it profitable to dry tile with artificial heat?

Mr. Horrocks: Uses fire underneath to dry in winter; make ten thousand tile a day; shed is two story; tile dry in about two or three days. It pays to dry tile in this way, but is not as profitable as drying by natural process.

Mr. Dawson: Uses artificial heat all the time by means of one inch steam pipe utilizing the escaping from the engine; this saves about twenty-five per cent. with tile and forty per cent. with brick.

Mr. Chandler: Our experience is that it takes as much wood to heat the shop as it does to run the engine, and that the steam costs nothing.

Mr. Dawson: When we had no steam heat the outside tiers cracked, but with steam pipes have had no trouble; two thousand feet of pipe is used.

Mr. Kemp: Dries tile and brick by artificial heat, driving the heated air by means of a fan underneath the ware, the hot air rising up through it. The tile and brick are both better. Take the tile right from the machine and dry ordinary red clay in thirty-six

hours—potters' clay requires a few hours longer. We fill and dry and move the tile out of the way all the time. We make tile one day and set in the kiln the next day.

Question—The best kiln for burning drain tile?

Mr. Craig: I use two kinds of kilns, one is a round crown—same as Whitehall kiln—and have built and used the Millington patent kiln, but am not favorably impressed with it so far.

Mr. La Tourette: I am not a tile burner, but in my travels observe closely the different kilns. I am convinced that the round crown, down-draft kiln is the best. There is one at Richwood, Ohio, that burns 1,000 or 1,200 rods of tile with seven cords of wood. I am convinced that these kilns are the best from my observation.

Mr. Horrocks: Our kiln is much the same in size, being eighteen feet in diameter. We think we could hardly burn any other way. We use all kinds of clay.

Mr. La Tourette: At Richwood they put the large tile on top.

Mr. Kemp read the following paper:

THE MANUFACTURE AND BURNING OF DRAIN TILE.

By J. R. Kemp.

To produce a first-class tile in texture, shape and appearance, from any material, the clay should be thrown up in a body, and allowed to equalize in moisture and disintegrate from the action of the elements to a greater or less degree, requiring from one week to four or more weeks. After having laid in this position the required time, it should be crushed by means of rollers, adding the necessary amount of water to make it plastic and of the proper consistency suitable to the requirements of the moulding machine used. Why use a crusher? it is asked. While it is not absolutely necessary to do so in all clays, it is a very decided advantage, financially, to all, and especially to those using hard or gravelly clays. The use of a crusher would enable many who think their clay unfit for making tile, on account of gravel that is in it, to produce the best of tile. The manipulation thus of clays greatly facilitates the moulding process, saving time, and enabling the operator to turn out a greater number of tile in a given time, there being no hard substance or obstacles to interfere with the passage through the dies, which interference all well know destroys the tile, and frequently requiring the stoppage of the machine and removal of the die. The next step to be considered is the transferring of the newly moulded tile to the drying sheds, which may be done in various ways, and is of little consequence how it is done, so that it is done without injury. A two-wheeled truck being, however, the most convenient and economical when racks are used to dry on. The drying is of much importance. The nature of clays should be carefully considered, as they differ very much, and require different treatment to secure the most strength. There are clays that will produce an excellent tile, such as the potters' clay and the plastic fire clay, that will bear rapid drying, usually, however, having better strength if longer time is given. The ordinary clays that produce a bright red color require much more care, and must be dried slowly. I have known instances where it was necessary that two weeks be taken to dry in the ordinary way of drying in closed sheds. My observations and experience leads me to the conclusion that the true position in which tile should be placed to dry is on end, and the true principle that embraced in the absorption process, using heated air, as used at Vincennes, Indiana, by the Vincennes Calorific Brick and Tile Company, an improvement upon the Bingham system, the most perfect, practical, compact arrangement ever invented, is cheap, durable and inexpensive to operate—a novelty to the beholder. By its use tile are being dried at this season of the year in 36 hours, in better condition than the same clay will produce dried in the ordinary way, requiring a week or ten days, enabling the operator to manufacture and dry bricks or tile the year round, wet or dry, cold or warm. Tile or brick are dried in from eight to twenty-four hours, the time required depending on the nature of the clay only. Both brick and tile are more sound and tenacious than when dried in the ordinary manner. Bricks or tile dried by the absorbing process burn in less time, and will be free from cracks usually occurring in burning tile dried in the ordinary way, there being no moisture to generate steam. The moisture absorbed by them from the atmosphere while settling or filling kiln, being sufficient to generate the required amount of steam to render the fusing perfect with proper appliances for burning. The Vincennes works are the most complete and perfect for making brick and tile in the United States. Want of time will prevent my giving the setting of tile in kiln but little consideration, yet it is important that brick or tile be set regularly, avoiding too large or too small spaces. Much depends upon the draught, without which no kiln will burn well, any more than a badly constructed chimney about our dwellings will prevent the housewife from frowning. I come now to treat upon by far the most important part of the work, the burning, it being at that stage where the last fraction of expense is incurred necessary to render the products merchantable, and where the greatest loss usually occurs, rendering a portion of the products useless, though costing the same as that portion made salable. A well burned

brick or tile, with a metallic ring, is always marketable and preferable, though they be not so smooth and perfect in shape. The burning of brick or tile is one and the same. That process which will burn one best, will burn the other equally as well. The manufacture of brick is one of the oldest arts of which we have any knowledge, yet the methods used in burning generally show less advancement than is to be observed in any other branch of manufacturing. I have, in my experience, burned by all the different methods known, generally using as fuel the best of wood or coal, the result never proving satisfactory until I commenced using the Wingard Calorifice, the use of which excludes all cold air, so damaging to clays when burning. With it refuse fuel can be utilized to great advantage, such as coke, coal slack, rough wood, etc., producing satisfactory results. This process embraces two or more arches or eyes in one furnace, usually, however, taking three arches to one furnace, and is by far the best and most practical method of burning brick or tile I have ever seen. The necessity of a permanent bottom is dispensed with. Brick or tiles can be burned elegantly in the space occupied by the permanent bottom, with the same heat required to burn above. I have traveled most of the States and Canadas, and have examined all methods of burning, with the above conclusion as the result. It is applicable to all clays, to large or small works, and will consume a refuse or cheap grade of fuel, with great saving in labor. There are a few general rules or directions that should be observed by all in burning. Every one should study the nature of his clay and conditions surrounding him. Different clays require different treatment. I find clays that will not unite if dried thoroughly before being heated in burning, in fact must be set in the kiln in a condition that would render the products of other clays worthless. Such clays must be driven in water, smoking as fast as an equilibrium and draught can be maintained in the kiln. I find other clays, such as that of the nature of granite foundation, found in the New England States, and on the Hudson river in New York State, the treatment of which must be very different and the opposite of the other, and the state or condition of the products must be the reverse before being set in the kiln, requiring to be thoroughly dried and handled with great care in heating up. If a very little too warm, or dried too fast, the products will explode; you will hear them popping like so many pistols, which is a warning to the burner that too much heat is being made. Hence I conclude that it is absolutely necessary to success that we study well the nature of our clay. As a general rule it is advisable to dry off and heat up slowly, being careful to diffuse the heat as best you can by the means you have at your command. The equalization and evenness of temperature of heat and exclusion of all cold air, is an absolute necessity to good burning, and certainly in the production of good wares.

On motion, the Treasurer was authorized to pay all bills for printing approved by the President and countersigned by the Secretary.

On motion, each tile manufacturer, member of the Association, was requested to present annual subscription of the "Prairie Farmer" or "Drainage Journal" to customers purchasing twenty-five or more dollars worth of drain tile during the present year.

The Treasurer made the following report, which was received and adopted:

ILLINOIS TILE-MAKERS' ASSOCIATION,

In Account with A. HORROCKS, *Treasurer.*

Cr.

By membership fees	$76 00

Dr.

To expenses, as per vouchers	$50 75	
" balance	25 25	
	$76 00	$76 00

I certify that the above is correct.

A. HORROCKS, *Treasurer.*

The following resolution, offered by Mr. Nunes, was, after some discussion, adopted:

Resolved, That the Secretary immediately notify every manufacturer of drain tile in this State that the Association propose to offer premiums for farm drainage, as hereinafter specified, whenever three hundred dollars shall have been paid in the treasury for that purpose, and also informing them that only the patrons of those contributing to the premium fund are permitted to compete for the premiums. Each manufacturer wishing to contribute to the fund can send three dollars to the Treasurer, A. Horrocks, Bardolph, Ill.; and if the sum of three hundred dollars is not contributed, the money is to be returned. If more than three hundred dollars shall be contributed, the committee shall be authorized to make award of premiums by distributing two-thirds to first and one-third to second premium. Proper steps shall be taken by the officers of the Association to give due notice of premiums to be given.

PREMIUMS FOR FARM DRAINAGE.

The members of the Tile-Makers Association of the State of Illinois offer for the best tile draining of farm land devoted principally to the production of cereals and grasses, the drain tile having been purchased during the year 1880 from the parties contributing to the fund, the following premiums:

Best tile draining of not less than 40 acres, $200; of not less that 20 acres, $100.

Premiums to be awarded at the meeting of the "Civil Engineers' Club of the Northwest," on the first Tuesday in February, 1881, by a committee of five members appointed by the Club, on the first Tuesday in December, 1880, before which date the Treasurer of this Association shall forward to the Secretary of said Club the names of the parties contributing to the premiums, and also shall authorize the Secretary to notify the committee to award such additional premiums as the fund may provide for, which money shall be forwarded to the Secretary of the said Club by the Treasurer of this Association, by December 15, 1880. The statement of parties competing for premiums shall be made to the Secretary of the Club, Chicago, Ill., on or before the first Monday in January, 1881, giving the following information: A description of the land, giving section, township and range; the character of soil and sub-soil; a diagram showing the location and size of drain tile (the number of dots, thus . . indicating the diameter in inches); full and complete information concerning the out-let, such being of importance; table, properly ruled, giving correctly the elevation, to the hundredth part of a foot, of the surface of the ground and the bottom of the drain above the datum line, and, consequently, the cut at every one-hundredth foot, and, when necessary for requisite information, at less distance; the fall per one hundred feet of each hundred feet of the entire system; the cost per rod for each tenth of a foot in depth of ditches (and how made) for the several sizes; the average depth of each main and of the laterals belonging thereto; the cost per thousand tile at the place from which hauled by wagons to and from; the name of the manufacturer; the aggregate cost of hauling the tile to the ditches; the cost per thousand feet for filling ditches, and manner filled; all other cost incurred; the total cost itemized, and the whole verified by affidavits of proper persons; no distinction to be made by the committee in the several kinds of tile—whether fire clay, potters' clay or common clay; no premium to be awarded if, in the opinion of the committee, the work does not deserve a premium, our aim being to encourage systematic drainage and secure information as to how draining can be most efficiently and economically done.

On motion, the President was authorized to appoint a committee to prepare a programme and make arrangements for the next annual meeting.

The motion was amended, making the President chairman of the committee.

President appointed as said committee:

J. K. Reader, Auburn, Ill.
H. D. Emery, Chicago, Ill.
A. Horrocks, Bardolph, Ill.
J. M. Pinkerton, R. C. Straight, Fairbury, Ill.

On motion, the editors Drainage Journal and Prairie Farmer were requested to publish the proceedings of this Association.

On motion, the thanks of the Association were tendered to the Secretary of the Illinois State Board of Agriculture for many courtesies extended.

On motion, the Association adjourned, to meet the third Tuesday in January, 1881, at the State House, Springfield, Illinois.

J. K. READER,
President.

SAMUEL ANDERSON,
Secretary.

Illinois Cane-Growers' and Sugar-Makers' Association.

FIRST ANNUAL MEETING.

ROOMS OF THE DEPARTMENT OF AGRICULTURE,
SPRINGFIELD, May 27, 1881.

The meeting was called to order by E. F. Newberry, who read the call and stated the objects of the meeting.

The meeting was organized by the election of the following officers:

President—Hon. D. B. Gillham, Upper Alton.

Secretary—Dr. E. F. Newberry, Sharpsburg.

The President, on taking the chair, addressed the Convention as follows:

Gentlemen of the Sugar-Growers and Manufacturers Convention of Illinois:

This is an honor I did not expect, and one that I feel incompetent to do justice to, as I have not had the opportunity hitherto of meeting with similar bodies that for the past two years have been meeting and consulting in various parts of the country, but as I am, and have been all my life, deeply interested in any and everything pertaining to agriculture, and its twin industry manufactures, I most cheerfully accept it, and, thanking you for the honor, will, with the aid of your sympathy, endeavor to make it a success.

I am happy, gentlemen, to say to you these new (to Illinois) industries of sugar-growing and manufacture in our State are assuming interesting proportions.

It is a subject that, taken from an economical standpoint alone, should, as it does, enlist the interest and sympathy of our brightest minds in working it up as a new industry—a new enterprise—that, if successful, (of which now there is no doubt) would save thousands of dollars annually to our people, by producing that at home instead of sending the money abroad, on the one hand, and furnishing labor and pay for the thousands at home that may be employed in its production. It should no less engage the interest of farmers and capitalists. To the farmers of Illinois it should have a peculiar significance, especially to those of the richest and fairest portion of the State, viz: North Central Illinois—which, until within a few years, was the great herding ground of thousands of beef cattle, but which, from causes beyond the control of the owners, has ceased to be profitable for that purpose. Hence, the old and once grand order of things has passed away, in a great measure, and these, the best lands of this, or, in fact, any other State, must be turned to a new and different account. This, once considered by Illinois farmers as the prince of vocations, from the great profits arising from buying and feeding cattle, has been superseded by cheaper lands adjacent to the cattle-breeding districts; and it is left now to these large and wealthy land-holders the choice of seemingly, to us, three things—either to seek out new systems of husbandry, such as sugar-growing presents, or divide up their splendid estates and sell them to smaller farmers and operators, or continue to lose money.

No longer will the old system of sod corn and Texas cattle pay, and it should, as it has, give way to an industry that comes nearer the civilization and advancement of the times

in which we live. An industry that supplies more people with the necessaries of life, by giving to them labor wherewith to earn those necessaries. Our population has not, in even the last decade, kept pace with our amassing of wealth in the rural district-. Four-fifths of our farms are yet too large for first-class culture, or even second-class results. There are few farms in Illinois, over the size of 160 acres, that are so managed as to make them a paying investment. and no fairer or more fertile lands lie out of doors.

The rich, dry lands of Central Illinois are particularly adapted to sugar growing whenever thoroughly drained, which, I am pleased to say, is now being rapidly done. The high dry, once timbered lands are equally adapted to this system of husbandry. Any lands that will successfully grow wheat can be relied upon to grow sugar. Our State has the ability to grow not only the ten millions of dollars worth that she annually consumes, but also to supply one-third of this great Mississippi Valley beside.

Thanks to the gentlemen whose untiring and persistent efforts have developed the fact that this great industry is not only a possibility, but is to-day an assured success; and I believe, from what I have read and what I see on the tables before me, gentlemen, that this, your first meeting, will be the starting point to a new era in the productive capacity of our State, and of incalculable value to the present and to coming generations.

There is an old maxim, that he that makes two blades of grass grow where only one grew before, is a public benefactor. If that be true, and it was never doubted or denied, how much greater the benefaction is conferred by the development of an industry hitherto considered foreign either to our climate or soil, which is cabable of feeding thousands of our population, enriching those who invest their capital in its production, and an annual saving of so much money to our consumers. All new enterprises are attended with greater or less difficulty. It requires time, energy and money to perfect them to even a paying point. But this, receiving the attention and talent and enterprise of such men as have already engaged in it, and such earnest workers and manipulators as I see here, is a a guarantee of its future success.

Again: Already enough has been developed in the enterprise to warrant our State government in assisting to place it beyond the possibility of failure for want of individual means, and this is truly one of the functions of good government. Do not mistake me as taking ground in favor of subsidizing individual manufacturers, but simply to supply means for scientific experiments for the whole people. Ours is truly a wonderful State, occupying a sufficient scope of latitude for the successful growth of many tropical plants, including that of sugar-cane, the very bed-rock of civilization; and it does seem now that it is only left for man to solve the problems of his greatest comforts as well as necessities, thus stamping her as the very Eden of America, or indeed the world.

Again thanking you, gentlemen, for the honor you have conferred upon me by calling me to preside over your deliberations of the first Sugar Growing Convention of our great State, I will not detain you longer.

On motion of Mr. McDowell, of Chicago, a committee was appointed to invite his excellency, Governor S. M. Cullom, to attend the meeting.

The President appointed as said committee Mr. McDowell, and Charles F. Mills, of Springfield.

The Governor was introduced by President Gillham, and addressed the Association as follows:

MR. PRESIDENT AND GENTLEMEN: I have had the honor of being waited upon and invited to come before you and say a word. While I have nothing special to say to you, yet I take pleasure in complying with your request.

In the outset, I most heartily and cordially welcome you to this Capitol. You are here, and organized as a convention, to discuss the question of the best mode of developing a new element of wealth in our State, a new production. As I understand, you propose to show to the people that a product can be raised here in Illinois from which sugar can be manufactured. What, Mr. President, is the name of this new species of cane?

Mr. Gillham—The Amber cane.

Yes, the Amber cane. If you can raise it, and from it make sugar, what movement or enterprise can be more praiseworthy? Sugar is one of the staple articles in every household. We all like to be sweetened a little as we go through the world. How much sugar is used in Illinois? We have a population of three and a half or four millions. It is said each person consumes about forty pounds a year—a pretty large amount, but that, I believe, is the estimate—about one hundred and fifty million pounds, which would cost not less than ten millions of dollars.

Suppose you can raise the cane and make the amount of sugar we use in our own State, you are adding ten or twelve millions to the wealth of our State, and while you are doing it you are giving greater variety to the industries of the people. You are engaged in a great work, my friends. If the movement shall prove a success, you will not stop in the production and manufacture for our own people alone—the markets of the world are open to you in this as in other trade.

The idea, gentlemen, which is uppermost in my mind, is that you are developing a new resource. As we grow older as a Nation and State, our population becomes more dense, and as civilization advances we need to diversify our industries and find out the capabilities of our soil. We have a great State stretching North and South four hundred miles—over a latitude of five and a half degrees. Our soil is capable of raising almost everything that is good for man or beast. In my opinion, we do not begin to know the capacity of our soil.

I look over this audience and I see men whom I have known for more than a quarter of a century, as pioneers in agricultural and horticultural development. My old friend, Col. Ellsworth, whom I see before me, your President here, Mr. Gillham, and others I might name. Your presence here gives assurance that this movement means success. The men who lead in these great movements for the greater development of our agricultural resources and wealth are like other brave men who lead in statesmanship and in developing a better civilization. Such men are benefactors, and are entitled to the gratitude of the world.

Gentlemen, I will not take up your time longer. I trust you will have a pleasant and profitable session, and that your movement will result in great benefit to the country.

Thanking you for the courtesy of your invitation to come before you, I will detain you no longer.

The Secretary stated that the following papers had been assured:

1. Seeds, Variety and Cultivation, by C. M. Schwarz, of Edwardsville, Ill.

2. Machinery for the Manufacture of Sugar and Syrup from Northern Cane Juice, by Major M. McDowell, of Chicago.

3. The Manufacture of Sugar and Syrup, by J. B. Thoms, of Crystal Lake, Ill.

The following paper was read, in the absence of the writer, by his partner, G. C. W. Belcher, of St. Louis:

SEEDS—VARIETIES AND CULTIVATION.

Essay by C. M. Schwarz.

I submit a hastily prepared paper, embracing such thoughts and deductions as present themselves to my mind, as sequence of many years practice and observation in the culture and manufacture of syrup and sugar from the northern sugar canes, known as sorghum. But in this instance I shall confine myself to that department of this industry embraced under the head of seeds, varieties and cultivation.

Seeds.

There is quite a distinction between all the varieties in the color, form and specific gravity of their seeds. The largest grown cane with us in this latitude (of St. Louis) is called Honduras. Some of the seed is of an oval form and closely capped with a bright red hull or glume, and has so much the resemblance of broom corn seed that many persons would take it for such. This characteristic is an objection to it, for no one could detect an adulteration or mixture until after maturity. This seed has attached to it a sprig that makes it difficult to plant with a machine. But this is no great objection, for, of all varieties, this should not be planted in drills, but in check-rows with plenty of room. The weight of this seed will be found less per bushel measure than any other, being forty-six pounds per bushel.

The next seed that I will call attention to as common with us is the Liberian, by some called "club top" and "red top," etc. This has a small round kernel, deep red or purple and mostly naked. This seed is some heavier than Honduras, weighing fifty pounds per bushel.

Next to this I will refer to the White Imphee, Neé-a-zee-a-na. This variety has short tuft, bushy, and often hangs to one side, and sometimes stands straight up like the Liberian. The kernel is large, nearly round and white, and when well cleaned will be found to weigh sixty pounds per bushel. The stalk is medium size and not as tall as the Early Amber, and though it is a favorite in some sections, it is not in my vicinity.

The Early Amber is quite familiar to most people of this State. The tuft is not large but upright, and not so spread out as to catch the wind and fall; although the stalk is some taller than the Liberian, it is not so long as the Honduras. The color of the glumes that partly cover the kernels, are a dark purple, and at a distance would appear to be black. The kernel is nearly the same as the last described, only not as white. When threshed with a separator, it will be about ninety per cent. clean of the glumes, though this method will crack some kernels. Seed thus threshed and well cleaned will weigh sixty pounds to the bushel. It is generally supposed to be a hybrid and its best qualities due to the White Imphee.

The new Chinese, called Sorgo Hybrid, has a larger tuft, very similar to the Oom-see-a-na with a black glume covering partly a round plump kernel, nearly like the Early Amber, but some larger. Its weight is about the same when well cleaned.

I will describe one other variety that I have grown the past season, the seed being sent me by Mr. I. A. Hedges, of St. Louis, who called it Amber Liberian; but from the orange color of the stalks when fully matured, I suggested the name of Early Orange, which has been adopted as being more descriptive of it. The tuft is shorter than the Early Amber, and more bushy, like the Liberian; it resembles the latter in every particular, except the color. It threshes well and will weigh, when cleaned, about fifty-six pounds per bushel.

This description includes all the varieties of cane that I am familiar with as adapted to our State.

Varieties and Qualities.

The Honduras, as a variety, is only suited to the southern part of this State, and I would only rely upon it as a part of a crop for late working. It is a large cane, and will, under favorable circumstances, give larger returns than any I have cultivated, and when ripe and correctly manufactured, make sugar of good quality. There appeared to be two varieties quite similar in most respects, only one about a foot shorter and ripened earlier, the form of seed tuft much like broom corn; but I was agreeably disappointed in finding it superior to the other. The yield the past season was about 200 gallons per acre.

The Sorgo Hybrid is a cane much like the Chinese—tall, heavy and full of juice of good quality for sugar or syrup—yielded 190 gallons per acre the past season. Its only objection is its liability to fall down, unless planted on poor soil. It ripens about ten days after the Early Amber.

The Early Amber is now generally well known among cane cultivators of this State. It has qualities to recommend it. First, it is an early variety and will afford material to commence work with, and by having it planted at different periods, it will furnish material to run with until the later and larger canes mature, and thus prolong the season of working. A good quality for sugar and fine syrup; yield 150 gallons per acre the past season.

The Early Orange, to which I will call your attention, is as yet but little known. It resembles in growth and size the regular Liberian, except in color. It will bear rich soil, never falls down, good for sugar and syrup; yield from 190 to 200 gallons per acre, the juice very rich, marking 12° B., and polarized 15.50 of sugar. The sample of sugar from this variety I send you, does not give it full credit. The cane was in a damaged condition, and being very crowded at the time with custom cane, I did not boil it with a view for sugar, hence the grain is small. The Early Amber being made at the beginning of the season, had more attention and is better grained.

Cultivation.

Under this head I need not say much, as every farmer is well aware that too much care cannot be given to the culture of any crop. These canes are feeble in early growth, and hence the soil should be thoroughly pulverized to a good depth, and the surface well harrowed and dragged smooth. I mark out the rows with a corn marker, three feet nine inches apart. For planting I use the Hoosier corn drill, which works well, drilling the seed like a wheat drill, about three and a half to four pounds to the acre. It should be thinned out when up, to about two or three stalks to the foot. I use the Thomas smoothing harrow the first thing when up. Then the walking cultivator and the hoe when necessary, until the cane is about three or four feet high, when it should be let alone to take care of itself. As for the suckers, I never pull any. If the cane was planted and came up thick enough, there will not be any to hurt. If they mature their seed in time with the other cane, they are comparatively just as good; and if they do not they will make good syrup. If the main stalk would gain anything by taking away the suckers, it would be well to do so; but such is not the case. It is very hard work to pull them, and they will mostly pull off before they come up by the root. This is a proof that they should be let alone. It is very convenient for the operator, when he gets bad syrup, to charge it to the suckers and immature stalks.

In conclusion I would say, that the formation of associations in the interest of this industry has done much good, and may do much more; and it is gratifying to me to find my own State moving, which I hope may continue until the greatly desired object shall have been obtained, viz: the production of our own supply of sugar.

The paper was discussed as follows:

Mr. Hedges, President Mississippi Valley Cane-Growers' Association, gave interesting accounts of the varieties of improved seed, and the success attending the manufacture; the early orange had been tested, and was taking the lead, and the experiments of the season would demonstrate the fact.

Mr. Hedges urged that parties move slowly in the planting of cane and the preparation for the manufacture of sugar, and, as experience warrants, enlarge operations.

Gov. Coleman had seen considerable of the early orange, and was much prejudiced in its favor.

Dr. Newberry preferred to plant 3½x2, with four stalks to hill, and found it much easier to gather the crop than when drilled; found seed equal for all kinds of stock as corn or wheat, and that it was highly beneficial; seed would yield 41 bushels per acre, sure crop; stands drouth better than corn, and no failures; Amber Early Orange ten days later, and then the old Chinese, and then White Imphee.

Mr. Hedges stated that much depended upon the soil; that lime and plaster greatly benefited the cane.

Mr. Warner stated that the richer soils, suited to growing potatoes, was not good for cane; that sandy loam or rolling prairie was better, and that the cane was permeated by any odor.

Gov. Coleman stated that ordinary good corn ground would produce good cane; that nine-tenths of western land would produce good sugar and syrup; old land and sandy knolls will produce cane that will give the best quality of sugar and syrup, and to be used in preference to rich bottom or virgin soil.

Mr. Belcher stated that Mr. Stuart's practice was to grow cane on the same land for years, and that after a wheat crop with clover plowed in the land.

Mr. Funk, of Iowa, found that clay points on timber land produced the best syrup and sugar of finer qualities, and that he found the seed of an acre of cane preferable to an acre of corn.

As to the time of cutting the cane, Mr. Hedges said that an error had grown up through the statement made by Horace Greeley, that it "must be worked in the dough." He had found it better to work the cane later.

Mr. Hedges said that the first sugar convention ever held met in the old State House twenty-three years ago, in this city, and at this meeting sugar was exhibited by Mr. Lovering which was just as good as the best made in Louisiana. We were now getting to the point then reached by Mr. Lovering, and he was glad to see that Illinois, the first State to hold a sugar convention, was again taking an interest in the subject.

Col. Coleman believed that any ordinary good corn ground in the West would produce cane that would make good sugar. Nine-tenths of the land in the West was adapted to the production of cane that would make good sugar.

As to the effect upon the soil of growing cane, Mr. Belcher said that Mr. Swartz had found that the quality of sugar improved each year by growing cane upon the same ground.

Mr. Funk said it was generally understood by the Iowa farmers that barnyard manure detracted from the quality of the sugar.

The following is the substance of the remarks of Major McDowell on the subject of machinery for the manufacture of sugar and syrup from northern cane juice:

Major McDowell, of Chicago, said that he was building works expressly to make sugar out of sorghum, with the machinery to handle a crop from 300 acres. He now had 200 acres under cultivation, divided out under contract with the farmers. His works were at South Elgin. He paid $2 per ton for cane-stalks to the farmers, but expected to be able next season to fix the value of the different varieties of corn as sugar plants. He was going to can the corn, and make sugar from the stalks.

He believed that the machinery now used was not what was needed in making sugar. Those who had experimented generally failed to procure all the machinery that was needed. The same patterns and the same style of machine are used now as were used 20 years ago. He hoped the next 20 years would show a great difference. Those who engage in the business now ought to take advantage of the knowledge obtained by those who have spent fortunes in experimenting, and then go on to success. The capacity of the mill must be fully understood. As a general thing, he

thought the mills did not give over 50 per cent. of the juice. The mill should be adapted to the quantity of the crop, or the crop should be graduated to the capacity of the mill.

Major McDowell said that his system of evaporation was a rapid one. He used a steam boiler with open tanks, and believed that he could get a larger quantity and better quality by this system. His mill would give him about 300 gallons of juice an hour, and was to be run 22 hours a day. He had four evaporators. The juice partakes more or less of the impurities of the soil. Some of these rise to the surface, and others are precipitated. By using this series of evaporators these impurities are gotten rid of. The Major concluded by answering a number of inquiries in regard to his machinery.

Mr. Thoms, of Crystal Lake, spoke at considerable length upon the comparative value of open pan and vacuum boiling. He claimed that five pounds of sugar can be made from a gallon of syrup by the vacuum process, where only three can be obtained from an open pan.

Col. Coleman knew several gentlemen who had made a success of open pan boiling. A Mr. Kinney, of Minneapolis, would manufacture 100 barrels of sugar by that process during this year. He thought, however, if the open pan process was a good one, the vacuum process was much better, and will ultimately be adopted.

Mr. Belcher, of St. Louis, spoke on the same topic. He believed both processes would make good sugar. He thought a vacuum pan very useful, and advised all who could afford one to get it. In his own refinery, near St. Louis, he is going to try the open pan process this year, and he believes he will be able to make both ends meet.

The following gentlemen present were made members of the Association:

Name.	Location.	County.
John Lowe	Johnsonville	Wayne
George Gregory	Bradfordton	Sangamon
M. P. Ayers	Jacksonville	Morgan
Malcoln McDowell	Chicago	Cook
Charles F. Mills	Springfield	Sangamon
John B. Thoms	Crystal Lake	Lake
S. McCall	Hoopeston	Vermilion
J. K. Smith	Pana	Christian
Jacob Funk	Fairfield	Wayne
David Lowe	Rosemond	Christian
V. S. Masters	Auburn	Sangamon
Wm. Neece	Nokomis	Montgomery
D. A. Tribble	Mason City	Macon
Lewis Ellsworth	Naperville	DuPage
Enoch Paine	Springfield	Sangamon
E. B. Warner	Morrison	Whiteside
E. Mickel	Pleasant Plains	Sangamon
E. F. Newberry	Sharpsburg	Christian
D. B. Gillham	Upper Alton	Madison
Charles Rouch	Virden	Macoupin

There were fifteen specimens of sugar and syrup on exhibition, and the hand centrifugal of I. A. Hedges, of St. Louis, was used in throwing out fine marketable dry sugar from half a dozen samples from various localities.

The Association adjourned, subject to the call of the President.

D. B. GILLHAM,
President.

E. T. NEWBERRY, Secretary.

Experiments at Illinois Industrial University.

By J. R. Scott, President Illinois State Board of Agriculture.
(Ex-officio member Board Trustees Industrial University.)

In accordance with request of the Board at the meeting in January last, I submit the following brief mention of some of the experiments tried at the Illinois Industrial University in 1880:

EXPERIMENTS WITH SORGHUM.

Probably the most interesting and important work done, so far as probability of important pecuniary results is concerned, was that in the manufacture of sorghum sugar and syrup. Working with ordinary apparatus—a Victor mill and Cook's evaporator—sugars of good quality were made, and at such rate as would give a good profit on a large scale. Thus, good brown sugar was made at the rate of 710 pounds per acre, with 727 pounds of molasses drained from the sugar. Counting the sugar worth 8 cents per pound, and the molasses worth 25 cents per gallon, the value of the product per acre would be $75.55 Analysis showed that less than one-half of the sugar was secured by the simple processes used. In a report made by Prof. Scovell, it is stated that the results obtained show crystalized sugar of as good quality as that of ordinary brown sugars can readily be made from either the Early Amber or the Early Orange corn, and that good white sugar can be made from the same sugar by refining. The experiments seem to prove that treatment of the juice with lime is necessary to the production of the best yield of corn sugar. While the Orange variety yielded the greater amount of juice, the syrup from the Early Amber crystalized most easily. For either variety it was found best to cut when the seeds were in the "hardening dough" stage. Samples of the sugar and syrup have been presented to this department and have been placed in the museum.

EXPERIMENTS WITH PEAR AND APPLE TREE BLIGHT.

In scientific interest the most important experiments of the year were those by which Prof. Burrill is thought to have proved that the cause of the blight in pear and apple trees, and probably of

the "yellows" in peach trees, is the action of minute organisms known as *bacteria*, similar or identical with those supposed by many veterinarians to be the cause of the disease known as "cholera," in the hog and chickens. No new remedy is suggested, nothing being discovered better than the plan of cutting away all the diseased portions as soon as they are noticed.

EXPERIMENTS IN ROTATION AND CULTIVATION.

An important and valuable series of experiments to test the effect of rotation of crops in comparison with continuous grain growing, with and without manuring, was instituted, but no important results will be obtained for several years. In a series of plots, the following rotation will be tested: Three years in grass and clover, two years in corn, one year in small grain. On adjoining plots corn will be cultivated each year. On one of these plots barn yard manure will be applied; on another, "commercial fertilizers;" on a third, no manure. On other plots corn and small grains will be alternated without grass or clover in the rotation.

EXPERIMENTS WITH VARIETIES OF CORN.

About twenty varieties of corn were tested. The marked influence of latitude was illustrated by varieties from Minnesota and Wisconsin, planted side by side with a variety from Anna, in Southern Illinois. The former were fully matured on August 25; the latter not until the middle of October. The Northern varieties did not produce as large crops nor as good ears as in the regions from which they come. Repeated experiments here confirm the belief that it is not advisable to obtain varieties of corn from points much further North or South. The favorite varieties on the University farms have been locally known as the Thomas and Murdock. Both are Yellow Dent; the latter medium in size and quite early in ripening. A variety obtained from LaSalle county gives promise of much value, but varies much in color. A variety known as Blout's White Prolific was tested for the third year, in neither of which were the results satisfactory, except in the production of a large growth of stalks. An experiment was made to test the readiness with which a variety would change its habit of producing a single ear. Seed was planted from two-eared stalks of the Thomas variety, which rarely produced but one ear. From 12 to 15 per cent. of the stalks from this seed produced two ears each. The upper and lower ears were planted separately, but no difference was found in the number of ears produced or in the quality of the corn.

EXPERIMENT WITH GRASS.

Plots of orchard grass, pennyroyal, rye grass, blue grass, red top, and alfolfu or lucem, were sown in April. The rye grass made most rapid and vigorous growth, but is not sufficiently hardy to withstand the winters. The orchard grass made a strong growth and a reasonably uniform sward. This grass is highly esteemed. The blue grass and red top made but little show during the season. The alfolfa did best on a poor clay soil, where the upper soil had

been removed. This variety has been grown on the farms for several years. When once established it grows rapidly, giving three crops a year, and seems to withstand drouth uncommonly well.

EXPERIMENT WITH CORN FOR FODDER.

On July 8, on ground from which a crop of wheat had been taken, corn was thickly drilled, by ordinary corn planter, going twice over each row. There was a severe drouth during the latter part of July and August, yet this planting gave a yield of four tons to the acre, of excellent fodder, fed in latter part of September.

EXPERIMENTS WITH VARIETIES OF CATTLE.

Two yearling steers, full bloods or grades, of each of the following breeds: Ayrshire, Devon, Hereford and Shorthorn, were purchased with design of keeping under same conditions until ready for slaughter, to test growth, early maturity, etc. The animals varied much from month to month, and it is thought better to defer report until another year. Keeping the steers in the ordinary way, it was noticed, however, that nearly all the gain was made during the four months May, June, September and October, but little increase being made during the heat and drouth of July and August or the cold and storms of November and December.

Retention of the Afterbirth in the Cow

By Dr. N. H. Paaren, Veterinarian Illinois State Board of Agriculture.

In cattle practice, the veterinarian is not unfrequently called upon to attend to irregularities in the expulsion of the afterbirth. Depending upon the cause of the retention, its removal may be effected with or without manual assistance. In our own practice we have found that in almost two-thirds of the cases the removal of the afterbirth was effected by internal treatment alone.

Ordinarily, soon after the cow has calved, the so-called afterpains begin, and, under normal conditions, the afterbirth is expelled in the course of the first twenty-four hours; otherwise it is often the case that it will not be discharged without assistance. Various circumstances may cause its retention; either disturbances in the function of the uterus, a faulty condition of the secundines themselves, or abnormal connections of these with the uterus.

The uterus, whose muscular fibres during gestation have become considerably extended, already begins to contract actively with the advent of the labor pains, and this, together with simultaneous contractions of the abdominal muscles, causes the opening of the *os uteri*, the escape of the liquor amnii, and the birth of the calf. As the empty uterus is then no longer influenced by the abdominal muscles, the expulsion of the afterbirth is effected alone by the uterine contractions; but various irregularities may prevent its expulsion. Among these may be mentioned, a poor and anæmic condition of the cow; beginning calving fever; advanced age; and protracted and difficult labor—under which circumstances the normal contractions of the uterus do not occur, or at least are not sufficiently effective.

When the calf leaves the uterus, a powerful stimulus to its action is removed; and this stimulus the afterbirth is quite inadequate to supply. If the uterus, from the causes just mentioned above, fails in discharging the afterbirth, it becomes accustomed, as it were, to its presence, and it no longer acts as a stimulus, but it remains with the uterus imperfectly contracted around it. Gradually, the uterus, in a soft and flabby condition, descends beneath the brim of the pelvis, in a position considerably lower than the vagina and external genital parts. The moisture from the afterbirth, which

latter is now a foreign body, and mucous secreted from the mucous membrane of the uterus, tend to soften the walls of the latter, often rendering them considerably tender. Thus the afterbirth is retained until it is removed by artificial means, or by its own weight, aided by a recumbent position of the cow, slides out through the yet open *os*, after being detached from the cotyledons by decomposition. Of course, the more the uterus and the abdominal walls have been expanded during gestation, the more readily follows a condition of inertia and flabbiness of the uterus, and therefore, retention of the afterbirth is very frequent in cases of twin births and by old, lean, poverty-stricken and hollow-backed cows.

Want of contractile power in the uterus can also be dependent upon, or a consequence of morbid conditions. Thus adhesion may have taken place during gestation between the cornu of the womb and the abdominal walls, by which retroflexion or return of the cornu to its normal position is prevented. Such adhesion may be suspected when, on examination soon after delivery, the cornu of the uterus is found to be remarkably long, and when it cannot, as under normal conditions, be drawn towards the vagina, by pulling in the afterbirth.

The afterbirth may also be retained in consequence of a too rapid contraction of the os uteri, while the uterus itself remains inert and flaccid. Likewise, retention may be due to a too rapid retroflexion of the uterus; for we often find by detaching the afterbirth from its natural adhesions, that it adheres most tightly in the flexed cornu (most frequently the right cornu), and that it requires forcible bending of the hand and wrist to effect its detachment. Another cause of retention is a too firm connection between the afterbirth and the cotyledons. This condition is not unfrequently met with in the cow. It is very common in cases of abortion that the afterbirth, despite the powerful and repeated straining of the cow, is not expelled, because the adhesions have not been loosened by the expulsion of the unripe fruit, and as a rule it does not loosen before decomposition takes place. Even in cases where eversion of the uterus has taken place after normal calving, it is often found impossible to detach the placentulæ from the cotyledons. A too firm connection between the afterbirth and the uterus, besides being ascertained while attempting its removal, may be suspected from the strong but ineffectual afterpains of the cow. By inserting the hand in the uterus in such a case, the powerful contractions almost paralyze the hand and render manipulation impossible.

The importance which the retention of the afterbirth has, as regards the life of the animal and its economical usefulness, varies considerably. If the general condition and state of health of the animal is good, if there is no straining, and if a considerable portion of the afterbirth is visible externally, there is generally no danger. The more of the afterbirth that protrudes soon after delivery, the greater is the probability that it will readily depart, and *vice versa*. But, should the animal lose its appetite and become drowsy; should diarrhœa and severe straining ensue; if the external parts become swollen, red and ulcerated, and the afterbirth decomposes, the condition of the animal must be regarded as precarious.

The qualitative condition of the secundines may vary, and this circumstance seems not to be without influence upon the retention and its consequences. Thus it is sometimes found to be tough, strong and leathery, a condition which long resists decomposition; so that, even after the lapse of eight days, it may yet be found comparatively fresh, in which case its retention does not seem to inconvenience the cow. In other cases it is found to be rather flabby, of loose texture, slimy, blue-colored from overfilling with blood, very tender and easily torn, soon decomposing, and thus in a high degree possessing the conditions favorable for the development of pyæmia. It seems, furthermore, that the danger from retention of the afterbirth to some extent may be enhanced by accidentally prevailing diseases, and especially during the prevalence of typhoid or putrid diseases among cattle.

From what we have said about some of the causes of retention of the afterbirth, it will be apparent that treatment in every case must vary considerably. Where the cow is quiet, the general health undisturbed, and the nearest cause of retention may be looked upon as due to relaxation or want of contractibility, the use of savin or ergot is indicated. The dose of ergot is from two drachms to half an ounce, given two or three times daily, together with juniper berries, calamus root, etc. Herbæ sabinæ may be given either in the form of infusion, an ounce to twenty-four ounces of water, at one dose; or, in the form of powder, from one-half to one ounce, two or three times daily, either alone or together with aromatics. If the cow strains so much as to make it probable that a too close adhesion exists between the parts, the use of half ounce doses of carbonate of potassium, together with slimy fluids, such as flaxseed or hempseed tea, will be indicated. However, in practice, we will often find cases, for instance, in fat and strong cows, where it will be proper to combine carbonate of potassium with savin or juniper berries, for the purpose of at once effecting detachment of the membranes and expulsive contractions of the uterus. Provided that the general condition of the cow remains unimpaired, these remedies may be continued during six to eight days. Should, however, loss of appetite and diarrhœa set in, the use of savin must be discontinued.

If, in spite of internal treatment, the afterbirth should be retained, it will be proper, after a week's time, to attempt its removal. This may be effected either by winding it off by means of one or two sticks, or by inserting the hand into the uterus and detaching the adhesions with the fingers. If, on account of a tender or friable condition of the membranes, the winding process does not succeed, and it is allowed to remain until it passes off in a decomposed condition, the floor of the stall should be arranged to make the cow stand much lower with the hinder parts; and with a view of abating the fetid odor and to wash out detached portions of membrane, it will be proper to use frequent injections of a weak solution of chloride of lime, which should be made with bloodwarm water and used immediately.

The removal of the afterbirth is indicated in cases where the cow strains violently after calving, so that eversion of the uterus may be feared; furthermore, when the usual remedies have been em-

ployed without effect; and, lastly, when the general condition of the animal is disturbed, and we have reason to fear the appearance of inflammation and absorption of decomposed matter, as already mentioned, the removal may be effected by winding it off. This process generally proves successful when the membranes are strong, which they generally are in cases of abortion, or when several placentulæ already have made their appearance externally, and this method is both the most convenient for the operator and the least dangerous to the cow. While engaged in the winding, the afterbirth should not be otherwise pulled in, and the winding should proceed by turning the stick in an upward and forward direction. Should the membranes part, it is best to wait a few days, when they may be found loosened. As there nearly always is more or less putrescent fluid accumulating with the uterus, of which a portion is expelled with the membranes, it is proper, with a view of furthering its escape, to arrange the stall so that the cow may lie lower with the hinder parts.

The other method of removing the afterbirth consists in detachment of its adhesions by aid of the hand inserted into the uterus. While that portion of the membranes which extends outwardly is taken hold of by one hand, the other hand is inserted between the membranes and the wall of the vagina, and passed through the os uteri as far forward as may be necessary. The placentulæ are then sought for and each one carefully separated from its attachment with the cotyledons of the uterus. In some cases the operator may thus succeed in removing the placental sac entire and without rupturing it. To succeed in removing the secundines, the os uteri must yet be in a relaxed and open state. It is known that its closure generally takes place about twenty-four hours after calving, but when a large portion of the secundines protrude through the same, it will be found possible after six to eight days, with proper care, to penetrate it with the hand. The application of great force on the walls of the os uterus, after it has closed, should be avoided, as such force may result in rupturing the organ. Such rupture is not always dangerous, but cases have occurred where the contact of putrid matter with fresh wounds have been the cause of dangerous metritis. Should it appear that the placentulæ adhere too tightly to the cotyledons, it will be best to desist from any effort at removal of the secundines for the present, for not only will a continued effort at removal result in tearing the membranes, but only a portion may be removed and the rest remain to decompose. The irritation caused by such forcible attempts is very apt to result in dangerous inflammation of the uterus.

The consequences of removal of the secundines by the hand can never be anticipated or foreseen. Thus, in cases where we have occupied several hours in detaching the membranes by the hand, and where the cow before and after the removal of these had strained violently, an easy recovery soon followed, while other cases, where the detachment was very easily and completely effected, have resulted in severe metritis.

When only the ends of the arteries of the umbilicus protrude through the vulva, and the cow otherwise is quiet and well, it is best to limit the treatment to internal remedies, and when these do

not prove effective in the course of eight days, the removal of the membranes may be attempted by the winding process or by the insertion of the hand.

In connection with this subject, it may be stated that the removal of the afterbirth will require the assistance of two men, one to hold the head of the cow and the other to hold the tail aside and upwards. The removal of the afterbirth is not without some danger to the operator. The continued contact with purtrescent matter is apt to produce severe erysipelatous inflammation, the formation of abscesses, enlargement of the lymphatic glands at the armpit, fever, herpes zoster, etc. From the latter painful affection the writer has suffered twice, each case being traceable only to putrescent infection, after removal of decaying afterbirth in one case, and after the removal of a dead and decomposed calf in the other case. The danger of such infections may generally be obviated by precautionary measures. It is our custom to liberally annoint not only the hand and arm, but also the genital organs of the animal, with oil or hog's lard, the latter of which is generally always attainable. As both hands by turn will be required in detaching the afterbirth, it is our custom to wipe off the hand and arm first inserted and to repeat the annointing a second or third time, if their insertion is again required. When the operation has been concluded, the arms and hands should be thoroughly cleaned with soap and warm water. A person with wounds or sores on his hands or arms should not engage in the operation. As the performance of the operation requires partial undressing of the operator, he should avoid exposure to drafts of cold air in the stable. As a protection to the clothing, the use of an old rubber overcoat without sleeves has been found very desirable by the writer.

Sorghum.

By Prof. H. A. Weber, Chemist Illinois State Board of Agriculture.

GENERAL REMARKS.

There are two substances which are of special interest at the present time to American agriculture, and especially to the agriculture of our own State. Every farmer, who desires to keep pace with the times, and is alive to the enhancement of his own personal interests as well as those of his profession in general, should thoroughly understand the relation which these two important products bear to agriculture and to each other.

These two substances are *sucrose* or *cane sugar*, and *glucose* or *grape sugar*. Both compounds occur widely distributed throughout the vegetable kingdom, sometimes singly, but most frequently together in varying proportions. As regards their chemical composition, they are closely allied to each other. Both consist of three elements, carbon, hydrogen and oxygen; the proportion of hydrogen and oxygen to carbon being a little greater in the grape sugar than in the cane sugar.

Plants, in virtue of their vital force, are capable of converting grape sugar into cane sugar as well as cane sugar into grape sugar.

By chemical means we can imitate the plants in one of these functions, namely, in the conversion of cane sugar into grape sugar, but chemistry has not yet discovered the secret of changing grape sugar into cane sugar artificially. If this could be done on a manufacturing scale, the attention of our farmers should be directed to the raising of corn rather than of sorghum. Judging from present appearances, we need not fear that this discovery will soon be made, and in view of this fact it behooves us to consider the subject in its present aspect, and if it is found practical by a proper use of nature's laboratory to establish a great national industry in the production of cane sugar, to do all in our power that this desired end should be reached.

Of those substances which, in an agricultural point of view, are suitable for exportation, sugar, on account of its chemical composition, should head the list. The constituents which enter into its formation are derived from the air and not from the soil. For the same reason cane sugar should not be imported. Now, in spite of the

fact that we possess a country whose wide range of climate and diversity of soil make the cultivation of all sugar producing plants an assured success, we are at the present time importing this indispensable article at the rate of $80,000,000 worth per annum. If we paid for this sugar in money or with other productions of our industries, there would be an excuse for the importation; but as it is, our chief articles of export are raw agricultural products. We are paying for this sugar with corn, wheat, oil-cake, etc., or, in other words, we are exchanging the fertility of our soil, the most precious of nature's gifts, for an article which brings nothing to our soil in return. This condition of things, however, can and will not remain much longer. I am confident that before many years we will produce our home demand for sugar, and in this production, on account of her superior natural advantages, Illinois is destined to take a prominent part.

There are many things which stand in the way of establishing, on a firm basis, a new industry like that of the production of sugar. As it is based directly upon agriculture, one condition of its success is, that the cultivation of the necessary crops should be generally participated in by all farming communities in those sections of the country which are suitable for their production. One difficulty in realizing this end is found in the fact that many persons are indifferent to any innovation which would interfere with the routine work to which they have become accustomed, and which they have inherited from their fathers.

Again: The work in this direction requires a certain investment of capital for necessary buildings and apparatus, and also a great deal of time in a season of the year when the farmer's time is most valuable, and few men are willing, or even able, to risk both in an uncertain enterprise. The greatest impediment to the general cultivation of sugar-plants, however, is caused unintentionally by parties who become enthusiastic in the matter. They rush into the enterprise either blindly or beyond their means, and fail. Their failure produces a discouraging effect, which it may take many years of labor in others to counteract. The failure of Genert Bros., at Chatsworth, in this State, in 1864, is pointed out to this day as the best argument against the cultivation of sugar beets for the production of sugar. But their failure was due to mismanagement combined with an unfavorable season, and not because the sugar beet industry was impractical in our State. In fact, the results obtained by them in regard to the production of sugar were exceedingly flattering for a single experiment. Their beets were rich in sugar, and they showed that sugar could be made from them in paying quantities.

The sugar beet has some decided advantages over sorghum as a sugar-producing plant; and in spite of the failure just alluded to, and of several minor ones which have taken place since, it is by no means a settled matter that even in our State the sugar beet will not yet contend with sorghum for supremacy, and ultimately drive it off the field.

In experiments with making sugar from sorghum, we have no such extensive failures to chronicle as in the case of the sugar beet; but still we hear of individual losses in the last season amount-

ing to several thousand dollars. I do not wish to be understood as discouraging these experiments. They are made by men who have money to lose, and we cannot appreciate too highly their good intentions and the liberality with which they spend money and labor in an enterprise, which, if successful, will benefit the general public as much as themselves. Their experiments are useful, although the results obtained are negative. These men may repeat their experiments, but the discouraging influence which their results bring upon others must be met in some way, if the enterprise is to make the desired progress. These are the chief obstacles in the way of the sorghum industry which are to be overcome, and the question arises, what is the remedy? There is only one remedy, and that is *science*. It was science which built up the great beet sugar industry of France, Germany and Russia; and if we wish to develop a similar industry here in the North, either from sugar beets or sorghum, we must be guided by the same scientific truths and experiments which raised the beet sugar industry in the Old World to its present high state of development.

The chemist can tell in a few hours' time, and at a trifling cost, which of two or more fields of sorghum is best adapted for the production of sugar. He can tell at what period of its growth the cane sugar is at its maximum, and the undesirable constituents at a minimum. He can tell which part of the plant—the top, middle or bottom—is the best, and which, if any, is useless or injurious; and he can tell these things with absolute accuracy. Some persons are of the opinion that practical men can obtain the same information in their way of working. If A has raised one variety of sorghum and B another, and both harvest and make sugar when they think the proper time has come, A producing five hundred and B three hundred pounds of sugar per acre, we may say that we have determined by experiment that the variety of sorghum which A has raised is much the better. But the difficulty here is, that the two experiments are not comparable with each other. A may by his method of working produce more sugar from an inferior cane than B from a better. Very slight differences in the methods of evaporating and treating the juice will produce effects which will vitiate the results so far as any definite information is concerned. So, we need not be surprised to hear one man report that the two top joints contain more sugar than the two bottom joints, while at the same time another contends for the very opposite. We hear of some experimenters who claim that sorghum improves in quality for a week or two after it is cut, if properly cared for, while others claim that it deteriorates. Some cultivators of sorghum find that timber land is much more suitable for the production of sugar and molasses than prairie soil. A man who desires to choose from such conflicting reports stands bewildered. But all these questions and hundreds of others must be definitely determined before the work can be prosecuted in an intelligent manner, and to accomplish this end scientific aid must be solicited.

The reason why the results reached by the chemist can be relied upon, while those of the practical experimenter are unreliable, when small but none the less important differences in quantity and quality are to be determined, is simply this: The methods employed

in chemical investigations have, during the development of the science, been perfected to such a degree that in the quantitative determination of the same substance in a given mixture, as for instance of cane sugar in sorghum juice, the results of any number of chemists would agree to within the very narrow limits of experimental error, while the methods employed in practice for making syrup and sugar are still in the most crude condition, and the chemical changes, which are continually going on, are but little or not at all understood by many of those who are doing the work.

Another great field for scientific research is in the improvement of the sorghum itself. Much has already been done in this direction. We have varieties of sorghum now which seem much better adapted to the conditions of our soil and climate than those introduced fifteen or twenty years ago. One great step in advance has been made in the establishment of early maturing varieties. Useful as this quality is in that it lengthens the time for gathering and working up the sorghum, it is still of minor importance. The great work of the botanist will be to give us varieties which shall be richer in saccharine matter. The quality of early ripening can be determined by any observer, and consequently we have already achieved in this direction as much as we can reasonable expect. But the improvement of sorghum in regard to the amount of sugar it contains is gradual, and cannot be recognized by the crude results of the practical sugar maker, and hence this important feature has been neglected. There is no doubt whatever that sorghum is susceptible of great improvement in this respect, and also that by proper cultivation the yield in sugar may be materially increased. The improvement of the sugar beet, as well as of the methods of its cultivation, gives us the best illustration of what has been done in this direction, and what we may reasonably expect in the case of sorghum. In this direction chemistry will lend her most valuable aid. As already intimated, the slight changes produced by improved varieties and methods of cultivation can only be recognized by exact scientific investigations. But these changes must be known, if we wish to make that progress which the science of the present day demands.

Many people are of the opinion that the aid of chemistry is entirely exhausted, when it teaches the best methods of treating the sorghum juice for the production of crystallizable sugar. It is true that when a new industry like that of the production of sugar is to be introduced, those who wish to take a part should know the best methods of procedure, and chemistry, from the nature of the work, can no doubt render valuable assistance in establishing these methods; but when once established, these methods will remain good for an indefinite length of time, and the science may thereafter, so far as they are concerned, be completely ignored. If this were all that chemistry could do for the establishment and development of the industry of which we are speaking, then the plea for science, which I am making here, would be ridiculous, indeed. So soon as we propose to embark in this great enterprise, questions and problems of vital importance will at once arise. These questions cannot be settled once for all, but they will reappear from time to time in consequence of ever varying conditions, and will

require new and laborious investigations for their satisfactory solution. Men will wish to know which varieties of sorghum are best, and what improvement can be made in crossing certain well-established varieties; they must know the proper time for cutting their crop, and the best thing to be done after it is cut; they must understand how the quantity and quality of sugar is effected by certain rotations of crops, and application of certain fertilizers; they must be told what kind of soil is best adapted to the raising of sorghum for the object to be attained, *i. e.*, for the production of the greatest yield of sugar, rather than of a heavy growth of cane, for the latter may be an injury instead of a benefit; they will desire to know whether they can increase the yield by certain methods of cultivation, and whether this increase will pay for the additional cost of such methods. To all these questions the farmer should have positive answers, and in the labyrinth of problems which thus naturally arise, science alone can be our guiding star.

It will be noticed that we have been considering the sorghum industry only in its relation to the production of crystallizable sugar, and we have done so for a very good reason. There are many men throughout our State who have been making a business of manufacturing syrup from sorghum, and who may look upon this as the true object for its cultivation. This being the case, I feel that I should not have fully done my duty if I did not attempt to disabuse their minds of this opinion. The manufacture of syrup alone from sorghum on a scale which would suffice to give it the name of an industry is a thing of the past. We have now arrived at a point in our national productions where we will either be obliged to make *sugar* from sorghum or give up its cultivation entirely. The sorghum industry is at the present time confronted by another, which, although still in its infancy, has already outstripped it in the production of syrup, both in quantity and quality, and which, in a year or two, will make the production of sorghum syrup as a paying business utterly impossible. I refer to the

GLUCOSE INDUSTRY,

which we will now briefly consider. We have already referred to the fact that glucose could readily be prepared from cane sugar, but since the purposes for which glucose is employed require a cheaper article than cane sugar, it is needless to say that no commercially successful enterprise could be based upon this conversion. Many other ways of preparing glucose have for a long time been known to chemists. Chief among these, and the one which is now carried on in our glucose factories, is the manufacture of glucose from starch. As this is a new industry, and is intimately connected with agriculture, it may be well to give a little space to the consideration of its nature, history and extent. Two conditions are necessary for the existence of this industry, namely, a market for syrup, to the production of which glucose is specially adapted, and an abundant and cheap source of starch. Both of these conditions are supplied by our own country in a more eminent degree than by any other, and hence the manufacture of glucose has become, to a great extent, an American industry. The necessary starch is derived from corn, which contains about sixty-five per cent. of this substance.

The other constituents of corn, as oil, albuminoids, etc., have a deleterious effect upon the quality of glucose, and hence the manufacture of this article consists of two distinct steps—the preparation of pure starch, and the conversion of starch into glucose. The preparation of starch is essentially the same as has been followed for a great many years in our starch factories. The shelled corn is soaked in water for a week or more. When soft it is crushed between rollers or ground in some other way. The crushed grain is washed upon fine seives with a constant stream of water. The husks and a part of the albuminous substances remain upon the seives, while the starch, which consists of minute granules, is washed through and carried to immense vats. Here it is thoroughly agitated with a large body of water, to which a small quantity of sodium hydroxide is usually added, to dissolve out the remaining albuminoids and oil. As soon as the heavier particles have subsided, the supernatant liquid, which holds the pure starch in suspension, is drawn off, and the starch allowed to subside. This process of washing is usually repeated two or three times. The purified starch is now ready for the second step in the process. For this purpose it is transferred to large wooden vats, and mixed with water to a thin paste, to which a certain quantity of acid is added. The acid most commonly employed is sulphuric acid, although other acids, as nitric, hydrochloric, oxalic, etc., have a similar action. The mixture of starch acid and water is next heated to boiling by means of a steam pipe coiled in the bottom of these wooden tubs, called converters, and the boiling continued until a sample taken out no longer gives a reaction for starch. The result of this action is a dilute solution of glucose, containing the acid originally added. The acid is next removed by the addition of calcium carbonate in the form of marble dust, powdered limestone, chalk, or Spanish white. By the chemical reaction which takes place between the sulphuric acid and calcium carbonate, calcium sulphate, or gypsum, is formed, which, being but slightly soluble in water, is almost completely removed in subsequent parts of the process. After treatment with calcium carbonate, the solution of glucose is filtered, first through bags and then through bone black, in order to purify and decolorize it. It is next run into vacuum pans, where it is concentrated to the consistency of syrup. From the vacuum pans it is again passed through bone black filters, and then forms the glucose of commerce. If solid glucose is to be made, this syrup is further concentrated, and dried.

The first glucose factory in this country was established on Long Island, near New York City, in 1867. Owing to the death of the superintendent, the enterprise was abandoned.

The first commercially successful factory was established at Buffalo, N. Y., about 1875. The demand for glucose since then has rapidly increased, and consequently new factories have sprung up all over the land. There are now some eighteen or twenty factories in this country, each consuming from 300 to 10,000 bushels of corn per day, and producing, in the aggregate, about 200,000 tons of glucose per annum.

In well-conducted factories the yield of glucose is thirty pounds per bushel of corn, and the cost of manufacture is less than 25

cents per bushel. Taking the price of corn at 35 cents a bushel, glucose can now be made at a cost price of two cents a pound.

Glucose was originally made for the purpose of furnishing syrups, and perhaps the greater portion of the present production is sold as such. Brewers use immense quantities of it. It takes the place of malt, for the glucose made from corn, as just described, is identical with that product by the process of malting. Hence, we see that beer is in part made from corn. It is also used by confectioners and vinegar-makers.

The best quality of solid glucose is used in mixing with the lower grades of cane sugar. Although this is an act of adulteration, which should not be countenanced, if the mixture is afterwards sold as cane sugar, still, much more has been made of it than the true nature of the case demands. A small quantity of white glucose mixed with low grade sugar improves the appearance of the latter; but the amount which can thus be added is limited by the properties of glucose itself. Glucose, although as an article of food equal to if not better than cane sugar, is not nearly so sweet, and, consequently, a mixture containing an undue proportion of glucose would not be salable. The higher grades of sugar can not be, and are not, adulterated with glucose.

Much has been said about the unhealthfulness of this artificial sugar. In its pure state, it is identical with the sugar contained in grapes and other fruits, as also with the substance into which cane sugar and starch are changed during the processes of mastication and digestion. Hence, the substance itself is not only harmless, but a very valuable article of food. Objections, however, are made against the manner of its production, more especially against the acid employed. Many persons are of the opinion that this acid remains in the glucose after it is finished, and enters into the systems of those who consume it. If this were the case, glucose would be a dreadful poison, and should be abolished without a moment's hesitation. But it was stated above that after the starch was converted into glucose by the action of the acid, calcium carbonate was added to neutralize the free acid. This part of the process is not a matter of choice, but a necessity. Strong sulphuric acid, when heated up with organic substances like sugar, destroys them. The same thing would take place on concentrating the glucose solution, if the acid were allowed to remain in the free state. This objection is utterly without foundation. In fact, glucose syrup, as now manufactured, is by far more free from mineral impurities than either sorghum syrup or New Orleans molasses. The production of glucose, as now carried on, is a perfectly legitimate business, and, if it interferes with any other interests to which we have become attached, we must meet it fairly and squarely. If we desire to perpetuate the cultivation of sorghum, our whole attention must be directed to the production of crystallized sugar, which glucose can never replace. When we can produce sugar from sorghum sufficient to yield a margin of profit, then we will be able to sell the resulting molasses at a price to warrant a ready market.

After these considerations, the important question presents itself: Can crystallized sugar be made from sorghum in paying quantities?

From experiments which were made here during the last season, and which we will now describe, I feel justified in answering the question in the affirmative.

Chemical Analyses of and Experiments in Sugar Making with Sorghum grown on the University Farm.

The following investigations were made in connection with G. E. Morrow, professor of agriculture, and M. A. Scovell, professor of agricultural chemistry.

The data in regard to the planting and cultivation of the two varieties of sorghum, Early Amber and Orange, which were experimented with, are given by Prof. Morrow, as follows:

"Seed was obtained of Mr. Hedges, of St. Louis; planted by hand May 14, 1880.

The Orange was planted in a plot of nearly one acre (9.55) in 24 rows, four feet apart, in hills about four feet in row.

The Early Amber was planted in a plot of one and one-half acres, in 40 rows, three and one-half feet apart, and with hills about same distance apart.

Each plot was on good prairie soil, which had been in corn two years, following a liberal application of barnyard manure.

The plots received ordinary field culture, with two-horse corn cultivator, except hand-hoeing and thinning to four or five stalks in each hill, when stalks were ten to twelve inches high. The suckers were not removed. The Orange averaged about seven feet in height, and over an inch in diameter at base.

The Early Amber averaged over nine feet in height, and rather less than three-quarters of an inch in diameter at base.

They were cut about six inches from ground. Of the Orange from two to three feet of top were taken off; of the Early Amber rather more than three feet."

Periodical Examination of the Canes for Sugar.

The objects of these investigations were:

1. To note the development and changes of the sugars in the plant during its growth.

2. To determine in the ripening process of the plant at what stage of development the largest amount of crystallizable sugar is present.

3. To notice the changes which the cane undergoes after reaching this maximum quantity of cane sugar, both in quality and quantity of its saccharine matter, *first*, by standing in the field untouched; *second*, by standing stripped two weeks; *third*, by being cut and lying under shelter.

4. To ascertain what part of the cane is the richest in sugars.

The examination of canes was conducted in the following manner:

On the date specified the stalks were cut off one joint above the ground, and to within three feet of the top of the Amber, and two and one-half feet of the Orange, and the leaves of both varieties removed.

The juice from the remaining parts of the cane, after being tested for its specific gravity, was divided into two portions. In one por-

tion the grape sugar was estimated directly with Fehling's solution. The other portion was acidulated with sulphuric acid and boiled to convert the cane sugar into grape sugar, and then subjected to the same process as above. The difference between the two results was calculated as cane (crystallizable) sugar.

The results of these experiments are as follows:

1. *Amber*—August 14, 1880. Juice obtained from plants with well developed seeds, though very soft and milky:

Specific gravity	1.065
Grape sugar present	3.34 per cent.
Cane sugar present	10.75 per cent.

2. *Orange*—Aug. 14, 1880. Juice obtained from plants with flower; stalks just beginning to appear:

Specific gravity	1.055
Grape sugar present	5.70 per cent.
Cane sugar present	4.90 per cent.

3. *Amber*—Aug. 25, 1880. Juice obtained from plants with seed, in dough and black:

Specific gravity	1.068
Grape sugar present	2.47 per cent.
Cane sugar present	12.48 per cent.

4. *Orange*—Aug. 25, 1880. Juice obtained from plants in full blossom:

Specific gravity	1.062
Grape sugar present	6.19 per cent.
Cane sugar present	7.12 per cent.

5. *Amber*—Sept. 6, 1880. Juice obtained from plant, with seed ripe and easily falling from husk:

Specific gravity	1.064
Grape sugar present	2.13 per cent.
Cane sugar present	11.42 per cent.

6. *Orange*—Sept. 6, 1880. Juice obtained from plant, with seed in dough, and speckled:

Specific gravity	1.068
Grape sugar present	5.00 per cent.
Cane sugar present	9.13 per cent.

7. *Amber*—Sept. 16, 1880. Juice obtained from ripe cane, fallen by storm:

Specific gravity	1.065
Grape sugar present	2.79 per cent.
Cane sugar present	11.02 per cent.

8. *Orange*—Sept. 16, 1880. Juice from plants with seed nearly ripe; plants standing:

Specific gravity	1.065
Grape sugar present	4.11 per cent.
Cane sugar present	9.76 per cent.

9. *Amber*—Oct. 2, 1880. Juice from cane still in the field, and prostrate from storm:

Specific gravity	1.069
Grape sugar present	2.47 per cent.
Cane sugar present	10.06 per cent.
Weight of entire stalks taken	45 pounds
Weight of leaves of same	2 pounds 7 oz.
Weight of seed and two joints	8½ pounds
Weight of juice obtained	14 pounds
Per cent. of leaves	5.43
Per cent. of tops	18.80
Per cent. of juice from crushed cane	41.10

10. *Amber*—Oct. 2, 1880. Juice from stalks, of which, on the 18th of September, the leaves had been removed, without disturbing them otherwise:

Specific gravity	1.074
Grape sugar present	1.82 per cent.
Cane sugar present	13.11 per cent.

11. *Amber*—Oct. 2, 1880. Juice obtained from the upper half of the stalks, after topping as usual:

Specific gravity	1.069
Grape sugar present	2.94 per cent.
Cane sugar present	9.67 per cent.

12. *Amber*—Oct. 2, 1880. Juice obtained from the lower half of stalks:

Specific gravity	1.070
Grape sugar	1.94 per cent.
Cane sugar	11.64 per cent.

13. *Orange*—Oct. 6, 1880. Juice obtained from plants very ripe, still standing in the field. No appearance of injury from the slight frost of previous week:

Specific gravity	1.078
Grape sugar	4.02 per cent.
Cane sugar	11.41 per cent.
Weight of entire stalks taken	37 pounds.
Weight of stalks used to obtain juice	25 pounds.
Weight of juice obtained	9 pounds.
Per cent. of juice	36
Per cent. of bagasse	64
Per cent. of grape sugar obtained from juice calculated as including bagasse	1.45
Per cent. of cane sugar obtained from juice, calculated as above	4.10

14. *Orange*—Oct. 23, 1880. Juice obtained from cane, which was cut, stripped and topped October 2, and placed under shelter until examined; juice whitish:

Specific gravity	1.094
Grape sugar	14.66 per cent.
Cane sugar	3.55 per cent.

The acidity of the juices was tested from time to time. The juice of the Amber was more acid in every instance than that of the Orange. Each variety reached its minimum of acidity at the maximum of cane sugar, and its maximum acidity by standing after being cut. The temperature of these experiments was 20° C.

From the investigations just described, the following conclusions may be safely deduced, at least so far as our soil and climate bear upon these two varieties of sorghum as sugar-producing plants:

Both varieties are rich in cane sugar.

2. The Amber is richer in cane, and the Orange in grape sugar.

3. As grape sugar interferes with crystallization of cane sugar, it follows that the Amber is better adapted to the production of sugar than the Orange.

4. The Orange yields the greater amount of juice per acre, and consequently would yield the greater amount of syrup.

5. The safest way to secure the full benefit of either variety for the production of sugar is to begin cutting the cane when the seed is in the dough, and to grind them as soon as possible after cutting.

After the cane is cut, the cane sugar changes into grape sugar, and this change takes place rapidly when the stalks are exposed to the sun's rays, and slowly when under shelter.

Proximate Analysis of Sorghum Cane.—An average portion of the Orange cut October 6, at the same time as that used in experiment 13, was reserved with tops and leaves still remaining for the analysis.

The leaves and two feet of tops were removed, and cross sections taken of each joint of the remainder of the stalks.

We omit here the method of analysis, and give only the results, which are as follows:

Composition of Orange cane in 100 parts:

Water	76.58
Grape sugar	3.00
Cane sugar	9.77
Starch	4.12
Fiber	4.54
Oil	0.07
Gum and vegetable acid	0.24
Soluble albuminoids	0.23
Insoluble albuminoids	0.16
Soluble ash	0.68
Insoluble ash	0.06
Total	99.45

Analysis of Sorghum Ash.

The remainder of the cane was incinerated at as low a temperature as possible, and the resulting ash analyzed. The following is its composition in 100 parts:

Silica	27.91
Oxide of iron	0.14
Phosphoric acid	5.37
Oxide of manganese	0.89
Lime	6.82
Magnesia	4.64
Sulphuric acid	6.23
Potassa	46.48
Soda	0.98
Sodium chloride	0.42
Total	99.88

Analysis of Sorghum Seed.

In order to determine the value of sorghum seed for feeding purposes, an analysis of the same was made. From the analysis it will be seen that it does not differ greatly from corn in its general composition. The tannin, which is found chiefly in the hulls of the seed, is perhaps the reason that it is not relished by animals like other grain. The seed analyzed was that of the Orange, and it is possible that other varieties may contain less of this ingredient.

The composition of the seed in 100 parts is as follows:

Sugar	0.56
Starch	63.09
Fiber	6.35
Water	12.51
Ash	0.64
Albuminoids	7.35
Oil	3.08
Tannin	5.42
Total	99.00

Experiments in Sugar-Making.

The grinding of the cane and the evaporation of the juice began on the 18th of September. It was the intention to begin working up the Early Amber as soon as possible after it had reached its maximum of cane sugar, and thus have it finished by the time the Orange was ready to harvest, leaving a portion for subsequent experiments. Owing to the delay in the arrival of the machinery, the work was not begun until the above date.

The Early Amber had been ripe for over two weeks, and was lying prostrate from the effects of a storm. The Orange was ripe. The object of these investigations was to determine the feasibility

of producing crystallizable sugar from sorghum, and not the production of syrup alone.

The work was undertaken with a view to the simplicity of machinery used, and to the economical manufacture of the syrup, so that the results could be of practical use to the farmer should any of the experiments prove successful.

The apparatus used for crushing the cane was a two-horse Victor mill with three upright rollers. The juice was evaporated in Cook's evaporator with furnace attached, and of the size recommended for use with a two-horse crusher.

The remaining apparatus consisted of barrels, tubs, pails, etc.

An attempt was made to heat the juice for skimming and clarification after it had been treated by chemicals, in the pan of a steam boiler of the form used by farmers to cook food for cattle. This boiler was found unfit for the purpose, as the temperature of the juice could not be raised in it above 108° F. A small pan was made, similar in construction to a Cook's evaporator, but furnished with a double bottom. The steam space in the bottom was about two inches high, and was connected with one of the boilers in the Chemical Laboratory. The object was to test the feasibility of evaporating the juice by steam under pressure with shallow pans.

In the experiments which follow, the juice was either evaporated directly as it came from the mill, *i. e.*, without the use of re-agents, or after it had been submitted to clarifying processes. In the first, the juice is designated in the experiment as *not clarified*, in the second, as clarified, defecated, or *neutralized*.

THE EXPERIMENTS.

1. *Early Amber.*—September 18, 1880. Cane, very ripe and down; juice, *not clarified*,—evaporated to a syrup which upon cooling weighed 11 pounds to the gallon. It was of a light color and had a distinct sorghum taste. Stalks, stripped and topped, yielded 48 per cent. of juice, having a specific gravity of 1.065. The sugar, not crystallized.

2. *Early Amber.*—September 20, 1880. *Juice defecated.* As the juice was brought from the mill, milk of lime was added, little at a time, until a piece of red litmus paper would change to purple when dipped into the juice. Then a solution of tannic acid and finally gelatine was added. The juice was then boiled and well skimmed, and concentrated to syrup. The syrup was scorched and had a taste of extract of licorice. A small portion of the syrup, evaporated over a water-bath to almost candy, was readily crystallized.

3. *Early Amber.*—September 21. Juice not clarified. The evaporation was continued until the syrup upon cooling weighed 11 pounds. The sugar did not crystallize.

4. *Early Amber.*—September 22. Juice made alkaline with lime, and thus neutralized with sulphate of alumina. Concentrated to a syrup that weighed when cooled between 11 and 11½ pounds; sugar crystallized. Before expressing the juice for this experiment the rollers were moved closer together and the cane crushed so much that the bagasse as it came out fell in pieces. Fifty-one per cent.

of juice was obtained with a specific gravity of 1.068. One row of cane, (0.037 acres) was taken for this experiment, producing 23 gallons juice from which was made 3.17 gallons syrup weighing 11¾ pounds per gallon. Calculating from this data, an acre of the Early Amber would yield 624.3 gallons of juice, or 86.1 gallons of syrup.

5. *Orange.*—September 23, 1880. Juice neutralized with milk of lime; afterwards tannin and gelatine added; evaporated to a syrup of 12 pounds to the gallon; syrup dark. The sugar commenced crystallizing in a few days. Three weeks afterwards the sugar was separated from the syrup by a centrifugal separator. Sugar, brown.

In this experiment, 360 pounds of topped and stripped stalks were used; producing 155 pounds of juice (43 per cent.); 28 pounds syrup (7.78 per cent. of the stalks and 18.04 per cent of the juice); 13¾ pounds sugar (3.8 per cent. of stalks, 8.87 per cent. of juice, 49.1 per cent. syrup).

One row, .0398 acres, yielded 30 pounds juice. Calculating the yield of an acre from these data, we have 754 gallons juice, 120.6 gallons, or 1,447.2 pounds syrup, and 710.67 pounds sugar.

6. *Orange.*—September 24, 1880. Juice neutralized with lime, and a few drops of tannin added to every 10 gallons juice; then ⅛ ounce gelatin, and afterwards a little sulphate of alumina. Juice evaporated to a syrup of 11 pounds to the gallon; color very light. Sugar began crystallizing after standing two days.

7. *Orange.*—September 27, 1880. Juice neutralized with lime, and concentrated to a syrup from 11 to 12 pounds per gallon. Sugar readily crystallized.

8. *Orange.*—September 27, 1880. Juice neutralized with milk of lime; *sulphurous* acid was added to combine with any lime remaining uncombined in the juice. The sugar began crystallizing as the syrup was cold.

9. *Orange.*—October 1, 1880. Juice defecated with lime and sulphate of alumina. Sugar began crystallizing after three days. In this experiment stripped and topped stalks were used; yielding 54.2 per cent. of juice; specific gravity, 1.076.

10. *Orange.*—October 1, 1880. Juice evaporated without defecation. The syrup, after standing about five weeks, had but few crystals of sugar. In a subsequent analysis of syrup (see analysis of syrup, No. 4), there was found to be 38.9 per cent. of cane sugar, and 26.91 per cent. of grape sugar.

11. *Orange.*—Juice not defecated; evaporated to a syrup of 12 pounds to the gallon. The sugar has not crystallized.

12. *Amber.*—Juice defecated with lime and sulphate of alumina. The juice was quite acid as it came from the mill. Syrup black. Sugar crystallized.

Finding that some of the syrup, whose juice had not been defected, did not crystallize, it was thought that perhaps a farther concentration would cause the sugar to crystallize. For this purpose the syrup produced in experiment No. 3 was selected. In the early part of November it was further concentrated in the steam evaporator, but this had no effect upon the crystallization of the sugar.

Finding that the concentration of the syrup did not cause the sugar to crystallize, an analysis of several of the syrups was undertaken, in order to investigate this subject more thoroughly. The following syrups were selected to be analyzed:

No. 1. *Early Amber.*—Syrup taken from that made in experiment No. 3.

No. 2. Syrup No. 1 subjected to further concentration.

No. 3. *Orange.*—Syrup of experiment No. 9, with the crystallized sugar taken out by the centrifugal separator.

No. 4. *Orange.*—Obtained from the syrup of experiment No. 10.

The following were the results obtained:

Number.	Cane Sugar.	Grape Sugar.	Gum.	Water.	Ash.	Total.
No. 1	47.32	14.70	6.80	29.40	1.97	100.09
No. 2	45.62	20.00	10.51	20.39	3.78	100.30
No. 3	35.63	26.82	6.75	28.67	1.40	99.27
No. 4	38.90	26.91	7.80	24.04	1.75	96.40

The cause of the large per cent. of ash shown in No. 2, was undoubtedly the lime added to neutralize the syrup before the second concentration.

GENERAL CONCLUSIONS.

1. From the results above given it appears that crystallized sugar can be obtained from sorghum of as good a quality as that of the ordinary brown sugars found in the market. A portion of this brown sugar was redesolved and the solution passed through bone-black. On evaporation, it yielded a white sugar which had no trace of sorghum taste or smell.

2. To insure the production and the best yield of crystallized sugar, the juice must be treated with lime *before heating*. If, after skimming, the excess of lime be neutralized with sulphurous acid, alum or even sulphuric acid, the syrup will be of a light color; otherwise the excess of lime will cause the syrup to be dark.

How much lime to add to the juice has always been a troublesome question to many who have experimented in this direction. As the acidity of the juice varies in different varieties of sorghum, and from time to time even in the same variety, it follows as a matter of course, that no *definite proportion* of juice and lime can be recommended. As a large excess of lime hinders and even may prevent the crystallization of the sugar, this addition should be made with the greatest care. The only practical and intelligent way to regulate the quantity of lime to be added, is to determine bv means of test paper (litmus paper) the point when the lime is in slight excess. This paper can be obtained at or at least procured by any druggist. Acids of all kinds turn *blue*, litmus paper *red*, and lime turns *red*, litmus paper *blue*. In treating a body of juice, "milk of lime" should be added little by little, with constant stirring, until the last addition causes a small piece of the test paper held in the juice to turn slowly from *red* to *blue*. If this is carefully done, the subsequent

neutralization of the excess of lime referred to above may be omitted without any serious injury so far as the sugar is concerned.

3. From the proximate analysis of the cane, it appears that one acre of sorghum produces over 2,500 pounds of cane sugar. Of this amount we obtained 710 pounds in the form of good brown sugar, and 265 pounds in the molasses drained from the sugar. Hence sixty-two per cent. of the total amount of sugar was lost during the process of manufacture. This shows that the method of manufacture in general use is very imperfect.

4. The 710 pounds of sugar at eight cents per pound would bring $56.80. The molasses is worth 25 cents a gallon, or the products of an acre of sorghum would bring $75.55. There is no doubt, that with proper care and apparatus the above yield can be doubled.

5. From our experiments it seems that about one-half of the sugar remains in the bagasse. This could, no doubt, in part be recovered by the process of percolation, as is sometimes done in the manufacture of beet-root sugar. Experiments will be made this coming season to determine the feasibility of recovering this great loss of sugar.

6. The amount of tannin in the ripe seed shows conclusively that the cane should be topped before expressing the juice, as an excess of tannin, especially in presence of lime, would tend to darken the syrup.

Second Annual Report.

By T. J. BURRILL, Botanist Illinois State Board of Agriculture.

ANTHRAX, OR BLIGHT IN PLANTS.

The word blight, as applied to diseases of plants, has no definite meaning. It includes, as popularly used, the most diverse causes and modes of injury and death. If we may say there is any limitations whatever, the term is perhaps more especially used when the cause of the apparent unhealthfulness of the plant is obscure or unknown. As applied to fruit trees, the work of certain insects is called blight, as in the case of the twig borer, a bud borer, the so-called American blight, etc. Not unfrequently the effects of wet or drouth, of heat or cold, are spoken of by the same name, while another and quite distinct form of disease, now known to be produced by *bacteria*, has the same common application. In the pear the latter is not unfrequently called fire blight, and in the apple, twig blight, or, when the trunk of this last named tree is the seat of the disease, sun-scald.

In order to avoid in part this confusion, the term *anthrax* is proposed for the disease to which this article is devoted.

Bacteria are microscopic organisms of the lowest and simplest class and construction. They have in the different species many forms, but may be said to be spherical or cylindrical; in the latter case either straight, bent or spirally twisted. Without the high powers of the compound microscope, they cannot be seen, and are therefore little known by actual observation to most of the presumed readers of this sketch; yet the little things swarm in everything having the trace of decomposition. Indoors and outdoors, in the earth, the air, the water, in dead substances and in living creatures, they may be almost universally and ubiquitously found. Numbers make up for the want of visible size, and ever active, aggressive operation for their individual nothingness.

The proper classification of this group is not well ascertained, but enough is known of the different forms and life histories to justify the conclusion that there are very many true species, as true in all the characteristics which make up specific distinctions as are found

in families and orders of higher organisms. They are plants. All careful and well informed botanists and zoölogists now agree that they belong to the vegetable kingdom, though much difference of opinion formerly prevailed on this point. Many even among those who made living things a special study, formerly thought they properly belonged among the infusoria of the animal kingdom. Some scientists of eminent authority in other matters (as chemistry), still hold that the bacteria are animals, and not plants. The main characteristic which formerly led many naturalists and now leads others, not special students of these groups, to consider bacteria animals, is their evident power of movement. In a drop of fluid flattened between two pieces of glass and placed under a powerful microscope, they appear, in very many cases, lively enough. They move to and fro, they turn over and around, they bend this way and that, they glide evenly along or zigzag across the microscopic field. To be sure, great differences exist among the different species and at different stages, under different conditions of the same species. regarding movement; but probably all do move more or less by an inherent power. Now, those not familiar with studies upon the vital phenomena of plants, and especially as exhibited among those revealed only by the microscope, are very likely to consider spontaneous or self-caused movement as a distinguishing feature of animals. This, however, is by no means the case. The fact is. all plants have more or less power of movement. The vine twines and reaches toward a support, flowers open and close, seedlings bend their germinating stems and roots to suit their necessities, while multitudes of the lower less known kinds of undoubted plants are as free to move from place to place as are any undoubted animals. This distinction between the vegetable and animal kingdoms must be entirely abandoned; and once done, the bacteria unquestionably fall among plants. They live, they grow, they propagate their kind, they die, every way similar to other plants. They never spontaneously develop out of something else; the law of parentage and descent is as fixed among them as among higher and larger organic forms.

Now, nothing can be more convincing than that bacteria cause disease in animals. They constitute for the most part the so-called "disease germs" of contagious and infectious maladies. Vaccine virus owes its peculiar properties to a special species, and the sore is a result of its growth and multiplication at the expense of the bodily tissues. Small pox "poison" is the same species modified by habit, or a closely allied species. Scarlet fever, measles, typhus and typhoid fever are only examples of the numerous diseases of man in which certain bacteria play a most important role. Hog and chicken "cholera," pleuro-pneumonia and anthrax in neat cattle are assuredly due to the presence and action of organisms belonging to the minute but wonderful workers of which we write. I am fully aware of the objections advanced to the "germ theory" in regard to the diseases of man and animals, but with the *facts* fully before me, cannot hesitate to write affirmatively and without question or doubt.

That bacteria also cause disease in cultivated plants has not, until pointed out by the author, been recognized.* I am, however, convinced that any one properly equipped and qualified for such studies will, upon investigation, certainly reach the conclusion that the forms of blight usually known as fire-blight of the pear and twig-blight of the apple are due to the effects of a specific bacterium.

The proofs are as follows:

1. Such an organism is always present in the affected tissues. No other fungus or insect, or other apparent parasite, is present.

2. The bacteria are always to be found in advance of fully diseased conditions, but always in comparatively less numbers.

3. The nutritive substances, especially starch, stored in the healthy cells gradually disappear after the penetration of the bacteria in these cells.

4. The gaseous products of the decomposition are identical with those resulting from fermentation of organic matter produced by bacteria.

5. The disease is communicated to healthy tissues by inoculation or introduction of the bacteria by puncture of the tissues.

The first three of these statements can be verified at any time and by any one expert in the use of the microscope, provided the material is at hand. Hundreds of examinations by myself, all giving the same results, make positive convictions irresistible. We need not wait for June and July, when most observers consider the disease specially virulent, but during any month in the year we may find the living organisms and their effects. The fourth item can only be satisfactorily determined by the chemist. This has been fully done by my colleague, Professor Weber.

The fifth point in proof of the real cause of the disease has been suggested by many practical horticulturists who had no knowledge whatever of the nature of the poison. They saw that the malady was communicated from one portion of the trees to others, and some were convinced that it could be carried from tree to tree upon the pruning knife. To carefully test the matter, during the summer of 1880 I made a great number of inoculations upon healthy trees and closely watched the result. Records were made every day for two and a half months, and at the end the whole were tabulated and conclusions reached. Of the whole number of inoculations, taking care to introduce only the bacteria in distilled water, sixty-three per cent. unmistakably communicated the disease. From numerous punctures with a cleaned needle in the same manner as the former, not one had a similar result. It may also be added that no blight followed the application of the bacteria to the outside of healthy, unbroken parts.

If it should be asked why all the inoculations were not successful, the answer cannot be confidently given. But while contagious diseases of man are readily communicated to certain individuals under certain circumstances, exceptions continually occur without known cause. The fact is, experiments upon living beings cannot be performed with the certainty of chemical or physical results.

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* See, especially, Transactions American Association for the Advancement of Science, 1880; Report of Trustees Illinois Industrial University, 1880; Transactions of Illinois and Indiana State Horticultural Societies, 1880.

During the present summer, 1881, this blight has not been so prevalent as last year. It seems that the dryness of the atmosphere and soil is unfavorable to the development of the disease. Some artificial inoculations, while they confirmed the experiments of last year, were not so generally successful.

Can anything be done in the way of remedy? Undoubtedly, yes. The progress of the disease is very slow, not as has been supposed rapid as the breaking of a thunderstorm. The starting point is usually in the bark, the deadly influence spreading through weeks or months in all directions from this. The leaves may or may not be changed. But not unfrequently the leaves themselves are first attacked and from these the malady may or may not reach the limb. The wood except in very young parts is not usually directly injured. The roots never become affected except by communication from the trunk.

The proper remedy is to carefully examine the trees at least as often as twice a month, and to promptly and thoroughly remove all affected parts. An application to the wounds of some impervious substance like linseed oil, pine tar, etc., will also be beneficial. As a preventive after the best selection of varieties and of thoroughly drained soil, the freedom of the tree from all wounds, punctures by insects, etc., must be sought. The trunk and main branches may be protected by a coat of raw linseed oil, or of lime whitewash in which a small amount of carbolic acid has been stirred.

ROPY MILK.

This topic may not at first sight be considered appropriate for a botanical report, but there are, as will be perceived, reasons to the contrary. In August, 1880, a dairyman of Champaign, Ill., found that in certain instances milk drawn from his cows after a few hours or even within an hour became thick and glutinous. It would pull out on dipping a rod of any kind into it, in slippery strings sometimes so tenacious that in lifting up the rod they would stretch out a foot or more. Usually the semigelatinous mass was found only on or near the surface, and frequently no other abormal appearance could be detected than fine thread-like strings upon withdrawing something plunged into the milk. Some of the customers supposed the milk to be sour and owed the thickened appearance to this. Others noticed the condition as something altogether peculiar. The dairyman was alarmed, for a few years before, in Indiana, his business had been entirely broken up by a similar difficulty. No one would use the milk; most customers blamed the man, supposing it was through some manipulation of the milk that the trouble ensued. In vain did they wash and scour, in vain investigate the source in the pasture, or as due to any particular cows. The dairy was changed to another farm, with new buildings, etc., but the trouble soon reappeared, and in despair the business was abandoned.

Upon inquiry among the farmers about Champaign, it was ascertained that at this same time (1880) several had noticed the same thing; but those who milked their own cows were not quite so easily disturbed, and usually continued to use the milk.

The writer, having been appealed to by the dairyman, examined with much care the diseased milk and the conditions of its production. The microscope revealed the presence of a very minute living organism in the thickened milk. There always is a somewhat similar organism in sour milk, and it has been thoroughly demonstrated that this living thing causes the change from sweet to sour. But except in the facts that both these organisms are exceedingly minute, were both colorless, and both by their motions gave evidence of life, they were sufficiently distinct. Those in the sour milk are cylindrical, the new ones in the thick (but not sour) milk were spherical; the former usually are quite distinctly jointed something like a short piece of a string of beads, the latter only rarely connected two by two. These minute round colorless things would not be seen at all without the aid of an excellent microscope capable of enlarging them about five hundred times across. They are very much smaller than the milk globules, but harder to make out, on account of the presence of the latter in such numbers.

Investigations proved that the trouble did not arise from any particular cow. Any fresh milk kept in any place tried, became thick and stringy upon adding the least amount of some already changed. Cows were milked in the pasture into thoroughly cleaned vessels by persons not having been near the barn, and no difficulty followed unless the milk thus obtained was taken to the dairy room, where everything was supposed to be in the cleanest and best order. In this way, however, the cause was satisfactorily traced to this room, and as satisfactorily to the microscopic organism found in the ropy milk. Now, this minute thing is a true plant, hence the excuse of the botanist for telling the story in this place. The little thing is one of the so-called organized ferments familiarly known as bacteria. It lives, grows and multiplies in the milk, and doubtless in other substances. By its peculiar action the sugar or some other part of the milk is changed into gum. This seemed to be all there was of it. No indications were observed of this changed milk being in any way unhealthful, and no reasons were found to suppose such would be the case, yet all were perfectly excusable for not wanting to use the slimy stuff.

It was found that small amounts of the following substances, put into the milk, hindered or prevented the phenomena: Carbolic acid, salicylic acid, borax; the order of effectiveness being that given. But by closely stopping every crack and crevice in the dairy room, shutting windows and doors, and burning flowers of sulphur, together with the use of disinfected whitewash, the difficulty entirely disappeared. The chain of evidence as to cause seemed complete and in every way satisfactory, and the cure a rational and complete one.

It is but just, however, to say that, according to accounts forwarded the writer by others, the case is not so simple as might appear. Some, after careful trial, seemingly traced the trouble to the milk of a particular cow, and apparently prevented further injury by the separation of this milk. One good observer says he prevents the occurence of the difficulty by simply giving the cows plenty of salt. He thinks salting the cow after the appearance of ropiness of the milk at once prevents further trouble.

It is not impossible that in the case of disease some of the minute organisms may live in the blood or other fluids of the cow and be drawn from the udder with the milk; but of this we must require the most positive proof before giving it credence. It is certain that milk may be, at least sometimes, taken from cows in the usual state of health, and, without heating or otherwise disinfecting, preserved sweet and good any length of time. This is done by having everything thoroughly freed from organic germs and drawing the milk in such manner as to entirely evade and exclude them.

During the course of the above experiments, Mason's quart fruit jar, perfect, except the rubber ring, was well baked in an oven. It was then taken to an open lot, to which a cow had been driven, opened, filled by the ordinary process of milking, closed (still without the rubber), and set in an upper unoccupied room in the main building of the Industrial University. This was Thursday, at three o'clock P. M. It remained perfectly sweet and good in every way until the following Monday. It was opened in the morning of the last named day and tested. In the afternoon it became sour, and the next morning was thick. The temperature during the time was usually between 75° and 80° Fahrenheit. By absolutely protecting the milk from the air, or rather from its freight of living organisms, such results might no doubt be uniformly obtained.

WATER AND VEGETATION.

Every one knows that plants require for their life-processes a considerable amount of water; that they suffer and die when it is not present in sufficient quantity. It seems to be serviceable to the plant as food, and it certainly is required for the solution of other food substances, as well as for maintaining the proper physical condition of the tissues. But there are few persons who have any adequate idea of the vast amount of water which is absorbed by plants from the soil. Even those whose business it is to teach what is called "Botany" in the schools rarely know what plants do in this respect; and the same may be said of those whose business it is to grow plants, to cultivate them, to manage soil and surroundings so as to obtain the best results for the labor bestowed. The facts are remarkable, and may well astonish all who become acquainted with them. Believing that such acquaintance may be valuable to some who may here gain an introduction, the writer takes pleasure in performing the ceremony.

In the first place, it may be stated that leaves in the ordinary healthy state absorb little or no water from the air. There has been much difference of opinion upon this point, and even scientists have not agreed upon it. Gardeners sprinkle the leafy portions of plants with water, and say that the revival which takes place in wilting leaves proves at once that the water is absorbed. Not unfrequently the statement is made that field plants (such as maize) revive at night by absorbing through the leaves and stems the dew which is deposited upon them. Certainly wilted plants do recover their fresh and healthful appearance when copiously showered with water, though not a drop reaches the roots. Certainly a field of corn in a dry time presents a conspicuous enough difference of appearance in the middle of a hot afternoon and the early morning

after a dewey night. But do these things and others like them show that leaves absorb water? A little attention will show that they do not.

If the florist will take a plant whose leaves have begun to droop on account of the want of water, and will place it under a glass vessel, he may soon see that, without the addition of water at all, the leaves become plump and assume their proper positions, as when copiously sprinkled. What can be the meaning of this? After a little time water may be observed condensing upon the inner surfaces of the glass, in dew-like drops. The air within the vessel becomes saturated with moisture from some source, while the drooping leaves are regaining their turgidity. The fact is, that even from these wilted leaves, while in the open air, large quantities of water are escaping. If by any means this amount is checked, the continuous supply from the roots soon fills the leaf-cells and restores their healthful condition. When the plant is showered with water, this is exactly what takes place. It is true, experiments have proved that leaves may and do absorb water abundantly, when they are immersed in the fluid, and it is also probably true that some water may be absorbed by *wilted* leaves from drops adhering to their surfaces; but so far as concerns the great and useful supply of water to healthy vegetation, we may unhesitatingly conclude that leaves have nothing to do with its absorption. None of it comes directly from the air. Atmospheric dew does not gain entrance to the tissues. The soil furnishes the water, and the roots take it up. There is no other source nor other organs for the work. If the roots send up as much or more than the leaves transpire, the latter continue turgid; if not, they wilt.

If we now examine the amount of water which plants take from the soil by their roots, and without stopping to inquire how much is used as food in the tissues, estimate the quantity which escapes from the leaves, we shall find sufficient reason for exclamations of wonder and astonishment. Even to those who try the experiments the wonder never ceases; they constantly ask, "Can this be true?" as they calculate the results. There can, therefore, be no surprise if those who simply read about it are skeptical and demand further evidence. But any one can experiment for himself, and it is to be hoped that some who read these lines may do so. It is easily done. One plan is as follows:

Take any plant grown in a small pot and carefully repot it with good soil in an impervious vessel, such as a tea or coffee cup, a glass goblet or jelly glass, or anything larger of glass or glazed earthenware. Allowing the roots to become well established in their new home by a week's delay, insert a half-inch tube of tin or glass into a hole in the soil; cover the latter with writing paper, neatly fitted around the edges of the "pot" and stem of the plant, and over this run a mixture of equal parts of melted tallow and resin, forming a cover through which there can be no escape of water. The short tube now furnishes the means of supplying the water needed by the plant. It must be corked when not in use. With this arrangement it is easily perceived that any loss of weight by the pot must be from the water taken up by the roots, sent upward through the stem and given to the air in the form of vapor. Practically,

this exhalation takes place through the leaves in most plants, and by measuring the leaf surface we readily arrive at the amount given off from any given area. We have now only to keep the plant in the ordinary conditions of healthy growth, and by weighing after watering, and again at various intervals, to determine the amount of water absorbed by the roots and transpired by the leaves. The same process may be adopted for a larger plant, using a larger vessel of any impervious substance. Florists' unglazed pots will not answer, unless made impervious to water by suitable coating. The increase of weight of the plant by assimilation, being comparatively very little, may be neglected.

The amount of water proved in this way to be given to the air by plants is, as previously stated, surprisingly great. During clear summer weather an average for ordinary thin-leaved plants is about one and one-fourth ounces per day of twelve hours for each square foot of leaf surface. About one-fifth as much under similar circumstances is exhaled during the night (twelve hours), making one and and one-half ounces each twenty-four hours per square foot leaf surface. This result is reached by Dr. Anders, of Philadelphia, and is verified by my own experiments.

But from these averages, there are many very marked deviations. Plants with thin, flat leaves transpire four to ten times as much as those with thick, succulent ones. All plants transpire most in clear weather and in a dry atmosphere in motion. Everything that tends to favor ordinary evaporation within certain temperatures increases transpiration, but the latter may proceed to some extent in an atmosphere saturated with moisture.

Dew on plants is very frequently from this source, and not a condensation from the atmosphere as it may be at other times. A little experiment here is of much interest. Place a glass vessel of any kind over some young plants of corn obtained by growing the seed in a pot or box. In a little time (a few hours at most) shining drops of water may be seen at the points and along the margins of the young leaves, and closer examination will show that it issues from the terminal ends of the leaf-veins. A piece of wire or flattened iron stuck up by the side of the leaves remains dry, further showing it is not condensed on the leaves from the air. Not unfrequently "dew" is thus formed during the day time in open but shady places when the air is quite moist, so that evaporation is not too rapid. We thus see that the water given off by the leaves of plants is not due to simple evaporation, however much this facilitates the process. There are physiological forces at work, subserving the necessities of the plants.

In order to appreciate the wonderful activity of vegetation in this respect, we must further apply the results obtained. A small geranium with twenty-five leaves averaging three inches across, transpiring one and a half ounces per square foot of leaf-surface in twenty-four consecutive hours, throws into the air during this time four and a half ounces, or more than one-fourth of a pint, of water. A good sized stalk of corn with an evaporating surface of twenty-one square feet similarly gives to the air two pounds, or one quart, of pure water every clear day. With three such stalks to the hill, and hills four feet each way, there would thus pass into the atmosphere each twenty-four hours of favorable summer weather the

enormous and apparently incredible amount of 8,167 quarts, or 64 barrels, or eight tons of water per acre! One large forest tree transpires about the same amount as this acre of corn, and an acre of forest five to ten times as much!

Surely this great quantity of water sucked from the earth by greedy rootlets and pumped into the air by countless thousands of millions of leaf pores, must have effects worthy of notice, and at the same time must attract the attention of those who cultivate intelligently the active workers which accomplish it—the living plants. The fact is many of the operations of tillage have their chief value in increasing the water supply to the roots, or in promoting the activity of the latter, thus accomplishing the same end. The difference in good and poor soil sometimes mostly depends on the relation borne to water. A most remarkable thing is that ordinary cultivated plants in fertile soil not holding free water, transpire vastly more than such as have their roots immersed in standing water.

By what force or forces is this water lifted from the earth to the highest parts of plants, reaching in the tallest of trees hundreds of feet?

The meagre statements in many of our books and other publications upon this subject are often copied from early speculations having in fact little or no foundation. It is said that capillary attraction causes the rise, and, for illustration, reference is made to the ascent of water above the surrounding level in fine tubes, as of glass. Now, the only vessels in wood with continuous openings at all comparable to such tubes, or to the veins of animals, are always filled with air when water is ascending to the leaves. If we cut a sapling in full leaf and take a weighed portion of the stem, say six inches long, through which considerable amounts of water have just been ascending, and throw it into water, the latter will penetrate the open vessels to the extent of ten or more per cent. of the previously determined weight of the wood, clearly showing that these vessels or ducts were not previously filled. Microscopical examinations more clearly reveal the same fact.

The ascent of water does, however, take place in the wood, not in the pith or bark. The latter may be removed without checking the transpiration from the leaves, so long as the denuded wood continues to live. Any one who has "girdled" forest trees in summer knows that the leaves do not wilt in consequence. A most interesting example of this was shown at the recent meeting of the Indiana Horticultural Society, by the Secretary, W. H. Ragan, in the case of a Scotch pine tree that had been girdled when about three inches in diameter. Growth ceased at and below the denuded part; but above, the annual rings had been formed, year after year, until the stem was some eight inches through, the whole top living and thriving, with a supply of water passing through the naked wood. In non-resinous wood, death under such circumstances is almost sure to take place, yet pines and their allies have no open ducts or other continuous vessels of any kind, while in cross sections of the grapevine, oaks, ash, and most other woods, these open, but empty, ducts may be seen by the unaided eye. If water rose, as so commonly supposed, through these tube-like vessels, surely the oak, ash, etc., not the pine, would best receive a supply under the condition cited.

When, however, the tree or plant of any kind is not in leaf, and transpiration is therefore not taking place, the whole tissue of the body may be gorged with water, and, in many cases, at such times this, with some dissolved substances, will issue from a wound, as in the maple tree in the process of tapping for sugar, bleeding of the grapevine, etc. This results from the activity of the roots, absorbing the water from the soil and sending it forcibly upward against gravity and against any obstruction offered by the structure of the stem. There is no such thing as a regular descent of sap in autumn and an ascent of the same in the spring, as popularly supposed. In the maple, the sugar is elaborated during the summer, and gradually stored away in certain cells throughout the tree—in roots, trunk and limbs. During early spring time, water is absorbed by the roots from the soil, and forced upward until all the tissues are full and swollen by a pressure surprisingly great. On account of this heavy pressure, the fluid readily escapes from any artificial wound, or, as sometimes happens, from a bursting of the tissues.

It is possible to measure the force by which the water is drawn or pushed up, for it must be understood that it does not require as much expenditure of force to raise water in the tissues of the tree or other plant as it does outside of these tissues. Gravity perpetually pulls it down. It has been conclusively shown, by elaborate and careful experiments, that the roots of plants are capable of absorbing water from soil not saturated and sending this water upward with sufficient energy to cause it to gain the highest extremities. A grapevine stalk has been found to exert a pressure sufficient to raise a column of water eighty-eight and three-fourths feet.

But as soon as the leaves make their appearance, root pressure not only ceases, but through wounds from which water before issued with such force, it is now with similar force sucked in and disappears. No maple or other kind of tree is known to "bleed" after the leaves appear. Let us not imagine, however, that because "root pressure" ceases, the absorption by the roots is less active. The pressure ceases only because the water is drawn up so forcibly that there is no accumulation of it in the roots to be pressed upon. After the whole leafy top of any growing plant has been removed, the water may after a little time exude from the cut surface, the tissues having been first filled from below.

The facts now confronting us are: Large amounts of water are lifted from the soil to the leaves and air. This water ascends through the woody part of the stem or trunk. The ducts or pores of the wood are not the vessels through which the water rises as in capillary tubes. Even the cavities of the cells of the wood are, when the plant is in leaf, filled with air, not with water.

The solution to the seeming puzzle is that the water ascends through the substance of the cell walls, not through the open cavities or inter-spaces. Perhaps the conditions of things may be adequately illustrated by conceiving many layers of empty honeycomb, arranged one upon another in close contact, forming a column. Suppose the wax capable of soaking up water and suppose the foot of the column furnished with a supply of the fluid. The latter would rise through the absorbing walls while the cell cavities remain filled with air. Now, the substance forming the walls of

wood cells though absolutely solid, without pores or open spaces of any kind so far as the best microscopes permit us to see, does greedily absorb water. As the latter, like other substances, fluids included, is made up of exceedingly minute solid particles called molecules, there must be molecular openings in the cell substance large enough to admit them. Both molecules and the molecular spaces are too minute to be made visible by the microscope, yet we may be assured both exist. The cell substance (called cellulose) absorbs water just as a dry brick does, and with such avidity and power that gravity exercises no comparative influence upon it. The absorption and dissemination take place as readily in one direction as another, up as well as down. There is, however, a constant tendency to an equilibrium or equal distribution of the fluid. If one part of the plant gains in any way more water than has another part, movement immediately begins from the former to the latter until the two are equally filled. This is a common law and easily accounted for. The fact is the absorption is due to the adhesion existing between the molecules of the cellulose and the molecules of water, and the equal distribution of the latter through every part of the former comes from the uniformity of this adhesive force throughout every part.

When the tissue of the root contains more water than that of the stem, movement takes place upward and continues until an equilibrium is reached. This is the cause of the ascent of the sap, when the plant is in leaf. When by transpiration water is lost in the leaves, disturbance is produced and movement started. There is no chance for the gorging of the cell cavities. The loss of water is is much too great for that.

All young plant cells contain a substance quite different from that composing the cell walls. In its active state in ordinary plants it is a semi-fluid or mucilaginous compound called protoplasm. This also absorbs water and has much to do with the movements of fluids in the plant. No dead stump "bleeds" at the top, notwithstanding dead wood absorbs water from the ground. The phenomena of bleeding largely depends on the young thin-walled protoplasm-bearing cells, such as are found around the outside and near the tip of roots. These cells have the remarkable power of absorbing water from without until they become swollen near unto bursting, and of continuing the absorption in one part while clear water is forced through and out of the wall at some other part. None but living cells do this, though it is supposed that an artificial cell could be made to imitate it by varying the structure in different parts. At any rate, this is the secret of "root pressure," and of the phenomena of "bleeding."

The enormous amount of water taken from the soil by our common field plants is only equaled by the wonderful development of roots. These organs are hid away from our eyes. Such as we see by ordinary digging bear a very small relation to the whole. The depth to which they penetrate is fertile source of astonishment. I have found the roots of wheat down twenty-one inches forty days after sowing. Rye sown in Autumn pushed its roots down three and a half feet by the middle of the following May. The roots of blue grass on a lawn were traced by myself down six feet, through twenty inches of black loam and the rest of the distance through a red-

dish clay sub-soil. Parsnip roots have been dug more than thirteen feet long. Clover has been known to reach a similar depth. An Elm tree in Vermont was found to send its roots thirty-five feet down, and other trees of this kind are known to send roots horizontally three hundred and seventy-five feet. In most apple orchards fifteen or more years old, the roots interlace from the different trees. I traced the root of a two year old grape vine (Layer) through a horizontal distance of thirteen feet, and the root of a ten year old Lombardy poplar seventy feet. The aggregate length of the roots of common plants, such as maize, wheat, bean, squash, reaches hundreds of feet. Much of this extent is made up of fine rootlets which are again clothed with multitudes of elongated cells called root-hairs. Of the total number of the latter upon any thriftily growing plant, we can only speculate in thousands and millions.

Roots in poor soils grow long and straggling, with comparatively few fibrous branches; in rich, mellow, moist (not wet) soil they copiously branch and bear an almost infinitely greater number of root-hairs. Hence the more vigorous growth in the latter soil is abundantly sustained.

It is manifestly important that tillage should be such as to favor the plant in the best way for its water supply. This, as we have seen, must be abundant and continuous. The roots must have access to it. Land plants suffer when the roots are immersed in water itself. Their root-hairs perish to a large extent, and unhealthfulness is shown in other ways. They require moist earth, the water being held in physical combination with the particles of the soil. The finer the pulverization, the smaller the particles, the more water in the proper condition can be held, and the less the tendency to evaporate from the surface. But the clearest good to be accomplished in this particular, is by deepening the available soil by stirring and by draining. Most soils once finely pulverized to the depth of three or four feet practically never get back into their previous condition. Subsoil stirring may not be necessary more than once in a score of years, but with this and afterwards thorough and frequent surface pulverization, better results may be obtained than by stirring a medium depth every year. Draining is especially important. No water combined with the soil in a suitable manner, for the use of the plant, will run away in a drain, while no roots will thrive below the level of standing water. If, instead of compelling plants to depend upon the upper foot of soil for their water supply, we give them three feet, they will not be slow to appropriate the whole; neither will they be so liable to suffer when the summer drouths occur.

REPORT

OF

COMMITTEE ON CROP AND LIVE STOCK STATISTICS.

To the State Board of Agriculture:

The increasing demand for, and the great interest manifested by, the producer as well as the commercial classes in the statistical reports issued by the department, is sufficient evidence of their approximate accuracy, and of the need for information of this character on the part of the general public.

The agricultural boards of the leading grain and meat producing States, appreciating the necessity of early information concerning the condition of the growing crops, as well as the yield immediately after harvest, have decided to commence the work of collecting and publishing similar crop and live stock statistics another year.

This coöperation on the part of these States in the work of collecting statistics will, in a measure, complete the system in nearly all the States producing a surplus of grain and meat, and largely increase the value of the reports issued by this department, and enable the farmer more easily to ascertain the supply, and, with approximate information as to the demand, determine the value of his productions.

The value of the statistics would be enhanced by obtaining the earliest data as to the area of the principal crops, and your committee would recommend that the blanks for agricultural statistics, prepared for the use of assessors in 1881, call for the acreage seeded for that year.

The interest in tile-draining is increasing in many sections of the State, and statistics concerning this extensive system of farm improvement would be a valuable aid in calling attention to the advantage and profit resulting from tile drainage, thus materially promoting this much-needed work on the low wet lands in the State that are capable of producing the largest crops, with proper drainage.

Your committee would recommend that the blanks provide for the collection of statistics as to the amount of tile laid in the several counties in the State, and also for the number and value of horses sold.

The expense for collecting, publishing and distributing crop reports during the past year is as follows:

1,100 December, 1879, crop blanks	$14 00
3,000 December, 1879, crop circulars	229 95
1,100 May, 1880, crop blanks	14 00
3,000 May, 1880, crop circulars	71 40

1,100 June, 1880, crop blanks	[illegible]
3,000 June, 1880, crop circulars	[illegible]
1,100 July, 1880, crop blanks	[illegible]
3,000 July, 1880, crop circulars	[illegible]
1,100 August, 1880, crop blanks	[illegible]
3,000 August, 1880, crop circulars	[illegible]
Crops—statistics of cost of production	[illegible]
Envelopes	[illegible]
Circulars	[illegible]
Postal cards	[illegible]
Extra clerk hire	[illegible]
Postage	[illegible]
Total	$1,[illegible]

The most important matters contained in the several reports are given herewith.

Respectfully submitted,

JAS. R. SCOTT,
GEO. S. HASKELL,
S. D. FISHER,
Committee.

CROP PROSPECTS.

Consolidation of Reports returned to the Department of Agriculture,

MAY 1, 1880.

The season of 1880 promises to liberally reward the efforts of the producer, who has reason for encouragement in the general outlook for abundant crops.

The confidence inspired by the success attending the farming operations of the previous year has not only provided the means, but stimulated the majority of our most progressive farmers to enlarge and improve upon the work of the past season.

The rapid extension of the vast wheat area in the new northwest, and the great improvement in the quality of live stock, so cheaply grazed in unnumbered herds on the boundless tracts of government land to the west and southwest, has impressed our thinking farmers with the probability of over-production of these staples, and with the necessity of more thorough culture of a greater variety of crops, and thereby in a great measure preventing the "glutting of the markets" with leading crops, and by such diversity of crops ensure reasonable returns for any surplus of the farm, which should be reduced to the most concentrated and profitable form.

Farm work is well advanced for the season, and planting nearly completed.

WINTER WHEAT.

In the northern counties the winter wheat was considerably injured, during the open winter and spring, by the frequent spells of freezing and thawing weather.

The want of the usual snow protection during the past open winter has exposed the wheat to the unfavorable changes of the season, which have been peculiarly trying to winter wheat, more especially in the northern counties.

On drained land, where the seed bed was properly prepared, and the wheat put in with a drill, the crop is generally in excellent condition and promises more than an average yield per acre.

The importance of drainage and thorough preparation of soil and care in seeding has seldom been more apparent than this spring, in the condition of the growing crop of winter wheat, which promises to liberally reward the farmer for the extra care and expense in seeding.

Wheat sown broadcast on low, level and wet ground is not up to an average, and but little better than that sown in standing corn, and much of the latter has been plowed up and the land seeded to other crops.

The wheat in the central and winter wheat counties of the State is up to a good average in condition, with fewer unpromising fields than for several years past.

The injury by drought, insects and other causes is confined to few localities, and with these exceptions the leading winter wheat counties give promise of even a greater yield per acre than the "great wheat crop of 1879," while the aggregate yield of some counties, with the largely increased acerage, will far exceed the crop of the previous season.

The early sown wheat promises to make the largest average yield per acre. The growth in some localities is quite rank, and fears are entertained that the crop may lodge.

The acreage of wheat frozen out has in many instances been re-seeded to spring wheat.

The condition of wheat is up to an average in eleven counties, and above an average in forty-four counties, while twenty-three counties range from 75 to 95 per cent. of an average, leaving but twenty-four counties out of one hundred and two counties in the State below three-fourths of an average in condition, the majority of which are northern counties, which grow but little winter wheat.

WINTER RYE.

This crop is growing mainly for winter and early spring pasture.

The crop is generally in good condition, and has received but little injury from the weather during the past winter and spring.

The acreage is somewhat less than for the previous year, and the crop is quite evenly distributed over the State. No special attention is given to growing rye for marketing in any county.

MEADOWS.

The condition of meadows is hardly up to an average.

The growth of grass is very backward, owing to the cold, backward spring.

The clover has been quite seriously injured by the freezing and thawing the past winter and spring, and is quite generally winter-killed.

The timothy, red top and other grasses (excepting clover) show thick and vigorous growth, which of late is improving rapidly, and promises an average crop of hay.

Newly seeded clover meadows show a good stand of young grass.

PASTURES.

Pastures are rather backward in growth and in bad condition where pastured through the winter and early spring.

The cold and, in many sections, wet spring, has been very unfavorable for the rapid growth of grass.

There is more complaint than usual of the injury to pastures by grub worms and other insects, which, however, is confined to localities.

More attention is given of late to the improvement of the quality and yield of pastures by sowing a greater variety of grasses, which will furnish forage plants in succession during the growing season.

In the dairy sections of the State the culture of grass lands has received more careful attention, and the success attending the seeding and care of pastures has resulted in greatly improving the quality and increasing the quantity of meat and dairy products per acre.

FRUIT.

There has seldom been a better prospect for all kinds of fruit and berries than the present season.

The exception is generally the result of local frost or storms.

It is too early to make any predictions concerning the fruit crop, as the critical season has not passed.

LIVE STOCK.

There is but little complaint of disease of farm animals, which are healthy and as a rule in fine condition.

The number of head of live stock on hand compares favorably with that of the corresponding period of 1879.

The increasing interest in sheep husbandry is quite perceptible, and the number on hand largely exceeds that of the previous year.

SOIL.

The soil breaks up much better than expected after the open winter and absence of the usual freezing weather.

There is considerable complaint in some sections that the heavy rains have packed the soil and made it difficult to pulverize to the best advantage for seeding.

CROP PROSPECTS.

[Consolidation of reports returned to the Department of Agriculture, June 1, 1880.]

SEASON.

The season of 1880 has been exceptionably favorable for plowing, planting, and the cultivation of crops, as well as the most satisfactory results attending the breeding and feeding of live stock.

The exceptions in the way of drouth, excessive rains, injury from insects or diseases among farm animals, are unusually rare and confined to narrow limits, and the loss therefrom will be comparatively small in the localities where reported.

The crops are in promising condition, with scarcely an exception, and seasonable weather until the hay and grain crops are harvested will ensure crops much above the average, both in quality and quantity.

The detailed information concerning the temperature, rainfall, etc., during the past month is given in the meteorological table, published on page 12 of this circular.

CORN.

The importance of the corn crop of Illinois to the general agricultural prosperity of the country is not fully appreciated by the great majority of our farmers, and the knowledge of the fact that nearly one-fifth of the corn crop of the United States is grown in Illinois, and that this single crop of the State is of more value than the annual productions of the gold and silver of the nation, should have the effect to enthuse corn-growers sufficiently to ensure in the future more than half the average yield per acre that our rich prairies will produce with proper drainage and thorough cultivation. It is gratifying to note the fact that more thorough preparation of the soil, more care in the selection of good seed, and better cultivation of the growing crops than heretofore are the order of the day, with an increased number of our farmers, which can but result in obtaining a more creditable average yield per acre not only of corn, but other crops.

The growing crop is generally in a good state of cultivation; the stand is even and the growth is forward for the season; this is especially the case on underdrained land, where the corn is clean and shows a more vigorous growth.

There is less complaint of injury by insects than usual; sod corn has been injured in some counties by cut-worms, and the army-worm has made its appearance in a few localities, but not in sufficient numbers to endanger the crop.

There has been less replanting than usual, owing to the superior quality of the seed used, and except in few localities visited by excessive storms, where the seed did not germinate, or the wet condition of the land has prevented thorough culture, the growing crop is in excellent condition, and promises more than an average yield per acre.

The early approach of the wheat harvest has had the effect to increase the efforts of farmers to have the corn well cultivated and "laid by" earlier than usual, and the more thorough and constant cultivation the crop has generally received is evinced by the absence of weeds and the rapid growth of corn, which is much in advance of the crop at corresponding date in 1879.

In a few counties the excessive and frequent rains have delayed, and in some isolated cases prevented, the planting of the usual acreage.

A very correct opinion of the prospects of the 1880 corn crop may be formed by the following table, which gives the condition June 1, 1880, of the crop in the counties in the State that produced over five million bushels each in 1879, aggregating nearly one-half the entire corn crop of the State:

Counties.	Yield in 1879, bushels.	1880 acreage compared with 1879.	Condition compared with an average.		
			June 1, 1880.	June 1, 1879.	June 1, 1878.
Bureau	5,414,076	106	104	86	95
Champaign	7,877,485	93	103	90	90
Christian	6,454,224	66	118	88	75
Fulton	5,620,580	103	95	82	100
Hancock	5,986,245	100	108	100	100
Henry	6,719,112	105	103	76	80
Iroquois	8,034,642	96	80	85	85
Knox	6,581,358	106	113	82	100
LaSalle	9,042,390	99	103	85	80
Livingston	11,325,840	92	91	90	64
Logan	6,376,356	97	93	80	90
Macoupin	5,327,450	85	103	86	45
McLean	12,560,900	97	86	88	95
Mercer	5,447,500	106	100	93	70
Montgomery	6,421,200	73	108	100	55
Ogle	5,050,760	100	101	95	85
Sangamon	5,728,968	88	106	86	75
Vermilion	6,324,040	93	117	104	82
Warren	5,249,160	105	102	100	100
Whiteside	5,146,400	112	100	85	82
Total	136,688,686	.....	.....	.....	.....

The acreage and condition, June 1, 1880, of the corn crop in the several counties is as follows:

ACREAGE.

Less than 1879.		Same or more than 1879.	
Number counties.	100 representing the acreage of 1879.	Number counties.	100 representing the acreage of 1879.
26	95	20	100
10	90	26	105
11	85	3	110
3	80	1	115
1	75		
1	70 or less.		
52		50	

CONDITION.

Below an average.			Average or better.		
Number counties.		100 representing an average condition.	Number counties.		100 representing an average condition.
1879.	1880.		1879.	1880.	
13	12	95	8	30	100
14	6	90	7	31	105
23	4	85	2	7	110
13	2	80	1	7	115
9	2	75			
12	1	70 or less.			

WINTER WHEAT.

The condition of winter wheat has seldom been more promising for an early and abundant harvest, and with favorable weather until the crop is secured, Illinois will sustain in 1880 its reputation as the leading State in the production of this cereal. In 1879, 45,041,252 bushels, or 10 per cent. of the entire wheat crop of the United States, was grown in Illinois.

Drilled wheat on drained land has tilled well, and generally covers the ground thickly with a strong growth of straw, supporting the large heads which are filled with a fine sample of plump, heavy wheat.

The past winter and early spring were very unfavorable for winter wheat, especially in the northern portions of the State, where extensive experiments were being made in growing this crop.

Many of the failures are largely attributable to the indifferent preparation of, and the wet condition of the soil, as well as the manner of seeding. The experience of this season will have the effect to induce more wheat growers to adopt the approved methods of farmers who succeed in ordinary seasons in securing remunerative crops of winter wheat in nearly every county in the State.

In the northern counties where the largest percentage of winter-killed wheat is reported, there are many favorable exceptions that promise an average, or better, yield per acre, which is owing largely to the better care in seeding on well-drained land.

The area of winter wheat plowed up this spring is more than made up in the increased acreage over that of the previous season.

There is a comparatively little complaint of injury to wheat on compact clay soils by the freezing and thawing weather.

The frequent rains in some sections have induced a rapid and rank growth of straw at the expense of well-filled heads, and danger of such wheat lodging is anticipated.

Rust on the wheat blade is reported in a number of counties, but no serious damage as yet has resulted therefrom.

The Hessian-fly and other insects have caused less uneasiness than usual this season and their appearance is confined to few localities.

The following table includes all the counties in the State that produced over one million bushels of winter wheat in 1879, the aggregate yield of which represents about one-half the crop of the State.

The condition of winter wheat in the counties named may be taken as a fair index of the prospect and extent of the crop of the State for 1880.

Counties.	Yield 1879, bushels.	1880—average compared with 1879.	1880—per c'nt. acreage killed.	Condition June 1, compared with an average.		
				1880.	1879.	1878.
Adams	1,852,864	110	14	82	109	100
Christian	1,266,165	160	5	111	95	80
Clinton	1,138,360	120	5	101	90	100
Jersey	1,608,675	107	2	108	67	70
Macoupin	2,211,956	119	3	116	75	85
Madison	2,480,874	120	.....	108	73	95
Monroe	1,193,125	123	.....	109	105	.....
Montgomary	1,442,298	162	1	109	90	90
Pike	1,649,100	118	1	97	90	85
Randolph	1,998,634	110	.....	100	92	100
St. Clair	2,409,181	104	.....	108	94	107
Washington	1,154,192	105	5	100	77	85
Total	20,400,414	.....	.....	.....	.....	.....

The condition of winter wheat, June 1, 1879 and 1880, in the several counties, is as follows:

Below an average.			Average or better.		
Number counties.		100 representing an average condition.	Number counties.		100 representing an average condition.
1879.	1880.		1879.	1880.	
14	7	95	10	19	100
15	7	90	7	9	105
4	5	85	5	13	110
4	8	80	3	6	115
12	2	75	1		125
12	26	70 or less			

MEADOWS.

The prospects for a fine hay crop are encouraging. The average yield per acre will exceed that of 1879.

The acre of meadow is less than last season, but the condition is up to an average, or better, in half (fifty-one) the counties in the State, while at corresponding date in 1879, there was but one county in which the reports gave encouragement for an average yield per acre of hay.

The clover was quite generally winter-killed, and the loss of clover hay will somewhat reduce the aggregate hay crop of 1880.

The late general rains throughout the State, and warm, seasonable weather, have greatly improved the condition of meadows since last report, and meadows are rapidly recovering from the effects of the cold, dry weather which prevailed early in the season in many sections of the State.

The army-worm is reported at work in several counties, but has done no serious injury, except in a few localities.

The following table gives the percentage of increase or decrease in acreage of meadows as compared with the previous year, and the condition of meadows the past three years, on the first of June, in ten of the leading hay-producing counties in the State, the aggregate crop of which amounted to nearly one-third of the total hay crop of the State in 1879.

Counties.	Yield 1879, tons.	1880—acreage compared with 1879.	Condition June 1, compared with an average.		
			1880.	1879.	1878.
Cook	143,869	96	85	75	1[illegible]
DeKalb	119,903	100	97	65	1[illegible]
Iroquois	65,541	95	95	95	1[illegible]
Kane	75,333	99	93	77	1[illegible]
Kankakee	60,408	91	100	85	1[illegible]
LaSalle	102,605	100	92	68	1[illegible]
McHenry	68,362	96	70	57	1[illegible]
Ogle	62,815	100	67	60	1[illegible]
Whiteside	73,704	95	90	87	1[illegible]
Will	99,578	101	102	70	1[illegible]
Total	872,113	.....	.....	.....	.....

The following table gives the acreage and condition of meadows June 1, 1880.—100 representing acreage of 1879, also a fair *average* in condition:

ACREAGE.

Less than 1879.		Same or more than in 1879.	
Number counties.	Per cent.	Number counties.	Per cent.
40	95	32	100
9	90	7	105
7	85	3	110
1	70	1	115
		2	120
57		45	

CONDITION.

Below an average.			Average or better.		
Number counties.		Per cent.	Number counties.		Per cent.
1879.	1880.		1879.	1880.	
2	27	95	1	23	100
.....	7	90	.....	20	105
8	9	85	.....	6	110
4	4	80	.....	2	115
13	2	75			
74	2	70 or less	1	51	
101	51				

OATS.

The season has been favorable for the rapid growth of oats, which are more forward than usual at this date. The stand is good, and, excepting the injury anticipated in a few localities from chinch bugs, the prospect is encouraging for an unusually large crop of oats.

The rank growth of straw in many localities increases the danger of loss by lodging.

As will be seen by the following table, the acreage is much larger than last season in sixty-five counties; only five per cent. less in twenty-one counties, leaving but sixteen counties from ten to thirty per cent. less in area than last season.

The condition is an average or better in eight counties; only five per cent. below an average in fifteen counties, leaving but seven counties ten to twenty-five per cent. below an average in condition.

The percentage of increase or decrease in area of nineteen of the counties, each of which produced last season over one million bushels of oats, the aggregate yield of which in 1879 was over one-half the entire oat crop of the State, is given below; also the condition of the crop the last three years on the first of June, which will enable the reader to very nearly approximate as to the extent and prospect of the growing crop:

OATS.

Counties.	Yield in bushels in 1879.	Acreage 1880 compared with 1879.	Condition June 1, compared with an average.		
			1880.	1879.	1878.
Bureau	1,001,628	103	103	86	107
Carroll	1,151,472	105	96	62	105
Cook	2,098,156	101	110	105	83
DeKalb	2,603,340	99	101	83	110
DuPage	1,242,864	102	96	80	100
Hancock	1,135,794	110	101	70	100
Iroquois	1,028,650	108	100	90	100
JoDaviess	1,258,280	100	92	70	106
Kane	1,034,484	101	107	82	105
Knox	1,493,720	113	105	64	95
LaSalle	1,666,731	97	93	90	95
Livingston	1,075,425	111	107	67	90
McHenry	1,228,688	107	101	66	100
McLean	1,722,384	93	99	63	105
Ogle	1,985,340	100	100	55	106
Stephenson	1,031,820	100	100	65	100
Whiteside	1,167,762	110	100	75	100
Will	2,588,200	105	110	85	100
Winnebago	1,497,265	98	91	70	105
Total	28,012,003	.....	.....	.....	.....

The following table gives the acreage and condition of meadows June 1, 1880, 100 representing acreage of 1879; also a fair average in condition:

ACREAGE.

Number of counties.	Per cent.	Number of counties.	Per cent.
21	95	33	100
5	90	22	105
5	85	6	110
2	80	3	115
2	75	1	135
2	70 or less	.....	.....
37		65	

CONDITION.

Below an average.			Average or better.		
Number of counties.		Per cent.	Number of counties.		Per cent.
1879.	1880.		1879.	1880.	
3	15	95	.....	34	100
5	4	90	.....	33	105
12	.....	85	1	8	110
1	1	80	.....	5	115
8	2	75			
72	.....	70 or less	1	80	
101	22				

WINTER RYE.

This crop is up to an average in condition in thirty-five counties; five per cent. above in eight counties; ten per cent. above in six counties, and twenty per cent above in one county. Over one-half the counties report the condition below an average, as follows: Five per cent below in ten counties; fifteen per cent. below in nine counties; twenty per cent. below in two counties; twenty-five per cent. below in four counties.

SPRING WHEAT.

Acreage.—Thirteen counties report the same acreage as in 1879; seven counties an increase of five per cent.; two counties an increase of ten per cent.; one county an increase of fifteen per cent., and in two counties the area has been increased twenty per cent. showing the same or an increased acreage in twenty-five counties, while the remaining twenty-seven counties reporting spring wheat show a decreased acreage, as follows: Five per cent. less in eight counties; ten per cent. less in five counties; fifteen per cent. less in six counties; twenty per cent. less in two counties; and twenty-five per cent. less in three counties, and a decrease of over twenty-five per cent. in three counties.

CONDITION.

In thirty-four out of the fifty-two counties reporting the condition of spring wheat, the prospect is favorable for an average or better yield per acre. Eighteen of the counties report the condition up to an average; twelve counties two per cent. above; two counties ten per cent. above; two counties twenty per cent. above. In six counties the condition is five per cent. below an average; ten per cent. below in four counties; fifteen per cent. below in four counties, and twenty per cent. below in the remaining four counties.

SPRING BARLEY.

Acreage.—The acreage of spring barley is less than last season in the twenty-seven counties reporting the crop.

Ten counties report the same area; two counties an increase of five per cent.; one county an increase of ten per cent.

Five per cent. less acreage than last year in four counties; ten per cent. less in four counties; fifteen per cent. less in two counties; twenty-five or less in one county; and in three counties twenty-five or less per cent.

CONDITION.

The condition promises an average crop in twelve counties; five per cent. more than an average in one county; ten per cent. more in two counties; and fifty per cent. more in one county. The condition is five per cent. below an average in four counties; fifteen per cent. below in five counties; and twenty per cent. below in two counties.

FLAX.

Acreage.—There is a slight increase in the acreage of flax as compared with last season. twelve counties report the same acreage as in 1879; there is an increase of five per cent. in four counties; ten per cent. in four counties; thirty per cent. in one county; forty-five per cent. in one county; and two hundred per cent. in one county.

The acreage is below an average in fifteen counties, as follows: Five per cent. in four counties; ten per cent. in three counties; fifteen per cent. in five counties; twenty-five per cent. in one county; and two counties still lower.

CONDITION.

The condition promises an average, or better than an average crop in thirty counties, twenty of which promise an average; in four counties the condition is five per cent. above an average; in five counties ten per cent. above; one county fifteen per cent. above. The condition is below an average in eight counties, as follows: Five per cent. below in five counties; ten per cent. below in one county; fifteen per cent. below in one county, and twenty per cent. below in one county.

BROOM CORN.

Acreage.—The acreage is the same as last year in thirty-one counties, and two counties report an increase of five per cent.; the acreage is five per cent. less in six counties; ten per cent. less in three counties; twenty per cent. less in two counties, and twenty-five per cent. less in one county.

CONDITION.

Thirty counties report a prospect for an average crop; the condition is five per cent. above an average in two counties, and ten per cent. above in one county. In four counties the condition is five per cent. below; in three counties ten per cent. below: in one county fifteen per cent. below: in one county twenty per cent. below, and less than thirty per cent. in one county.

COTTON.

This crop is reported in four counties, three of which report the same area as last season, and five per cent. less in one county.

The condition of the crop is very favorable, one county reporting the condition an average; one twenty-five per cent. above, and one fifty per cent. above an average. In one county the condition is five per cent. below an average.

TOBACCO.

This crop is cultivated to some extent in twenty-nine counties. The acreage is the same as last year in fifteen counties; five per cent. greater in one, and ten per cent greater in one. The area is five per cent. less in two counties; ten per cent. less in two counties; fifteen per cent. less in two counties; twenty per cent. less in one county; twenty-five per cent. less in one county, and three counties over thirty per cent. less.

CONDITION.

The prospect is favorable for an average crop in seventeen counties; five per cent. more than an average in two counties, and ten per cent. more in two counties. In three counties the condition is five per cent. below an average; in two counties ten per cent. below; one county fifteen per cent. below; one county twenty-five per cent. below, and one thirty per cent. below.

CASTOR BEANS.

Only thirteen counties report this crop, six of which report the same acreage as last season, and one county reporting an increase of twenty-five per cent. In one county the area is five per cent. less than in 1879; three counties ten per cent. less, and two counties more than thirty per cent. less.

The crop is up to an average in condition in eight counties, and five per cent. above an average in two counties; five per cent. below in one county, and ten per cent. below in two counties.

IRISH POTATOES.

There is an increase in the area of this crop as compared with last season. Forty-three counties report the same acreage as in 1879; thirty counties an increase of five per cent., and five counties an increase in acreage of ten per cent. The area is five per cent. less in eighteen counties; ten per cent. less in three counties; fifteen per cent. less in one county; twenty-five per cent. less in one county.

The condition is up to an average in forty-nine counties; five per cent. above an average in twenty-three counties; ten per cent. above in six counties; fifteen per cent above in three counties, and twenty per cent. above in one county. The condition is five per cent. below an average in sixteen counties; ten per cent. in two counties, and fifteen per cent. below in two counties.

SWEET POTATOES.

The same area as last season is reported in fifty-six counties; five per cent. increase in twenty counties, and ten per cent. increase in four counties.

The area is five per cent. less in eight counties; ten per cent. less in four counties, and twenty-five per cent. less in one county.

The condition promises an unusually large crop. In fifty-four counties the condition is up to an average; five per cent. above in eighteen counties; ten per cent. above in three counties, and twenty per cent. above in one county.

The condition is five per cent. below an average in ten counties; fifteen per cent. below in four counties, and twenty-five per cent. below in one county.

PASTURES.

The area of pastures is less than in 1879. Forty-four counties report the same acreage as last season; fourteen counties an increase of five per cent.; two counties an increase of twenty per cent. The area is five per cent. less in thirty-three counties; ten per cent. less in four counties; fifteen per cent. less in three counties, and twenty-five per cent. less in one county.

The condition is up to an average in twenty-nine counties; five per cent. above in twenty-seven counties; ten per cent. above in seven counties, and fifteen per cent. above in six counties.

The condition is five per cent. below an average in nineteen counties; fifteen per cent. below in seven counties; twenty-five per cent. below in two counties, and one county less than thirty per cent. less than an average prospect.

SORGHUM.

Ninety counties report this crop, the acreage of which exceeds that of the previous year. Forty-five counties report the same area as in 1879. There is an increase of five per cent. in nine counties; ten per cent. more in five counties; twenty per cent. more in one county; twenty-five per cent. more in two counties; forty-five per cent. in one; fifty per cent. in one; eighty-five per cent. in one, and two hundred per cent. increase of area in one county.

There is a decrease of five per cent. in ten counties; ten per cent. in four counties; fifteen per cent. in eight counties, and twenty-five per cent. less in one county.

The condition promises an average crop in sixty-five counties; five per cent. more in four counties; ten per cent. in one county, and twenty-five per cent. more than an average crop in one county.

Nine counties report the condition five per cent. below an average; three counties ten per cent. below; three counties fifteen per cent. below; two counties twenty-five per cent. below, and one county thirty per cent. below an average in condition.

FRUIT PROSPECTS.

APPLES.

Twenty-six counties report the same area as last season. This is an increase of five per cent. in twenty-three counties; ten per cent. in nineteen counties; fifteen per cent. increase in fourteen counties; twenty per cent. increase in six counties, and thirty-five per cent. increase in one county. There is five per cent. less area in eight counties; fifteen per cent. less in two counties, and twenty per cent. less in one county.

The prospect is good for an average crop of fruit in sixteen counties; five per cent. more than an average in eight counties; ten per cent. more in two counties; fifteen per cent. more in one county, and twenty per cent. more in one county.

In twenty-four counties there will be five per cent. less than an average; ten per cent. less in seven counties; fifteen per cent. less in nineteen counties; twenty per cent. less in eleven counties; twenty-five per cent. less in seven counties; while in six counties there will be over thirty per cent. less than an average crop.

PEACHES.

There is no change in the area of peach orchards in sixteen counties; an increase of five per cent. in twenty-three counties; ten per cent. in eleven counties; fifteen per cent. in nine counties; twenty per cent. in one county; twenty-five per cent. in four counties; thirty-five per cent. in three counties; forty per cent. in two counties, and fifty per cent. increase over 1879 in area in one county. There is a decrease of five per cent. in nine counties; ten per cent. in one county; fifteen per cent. in four counties; twenty per cent. in two counties; twenty-five per cent. less in one county, and thirty per cent. less in two counties.

The prospect is good for an average crop in ten counties; five per cent. more than an average in sixteen counties; ten per cent. more in eight counties; fifteen per cent. more in sixteen counties; ten per cent. more in eight counties; fifteen per cent. more in four counties; twenty per cent. more in three counties; twenty-five per cent. more in two counties; thirty-five per cent. more in four counties; fifty-five per cent. more in one county.

There will be five per cent. less than an average crop in eleven counties; ten per cent. less in eight counties; fifteen per cent. less in three counties; twenty per cent. less in four counties; twenty-five per cent. less in seven counties, and less than thirty per cent. below an average in nine counties.

PEARS.

The area of pear orchards is the same in forty-two counties as in 1879; five per cent. more in eighteen counties; ten per cent. more in eleven counties; fifteen per cent. more in three counties; twenty per cent. more in one county; twenty-five per cent. more in

eleven counties; thirty per cent. more in one county, and fifty per cent. more in one county than last season. The area is five per cent. less in eighteen counties; ten per cent. less in ten counties; fifteen per cent. less in two counties; twenty-five per cent. less in four counties, and less than thirty per cent. below in two counties.

The condition of the crop is up to an average in eighteen counties; five per cent. above in seven counties; ten per cent above in two counties, and fifteen per cent. above in one county.

There will be five per cent. less than average crop in fourteen counties; ten per cent. less in fourteen counties; fifteen per cent. less in eleven counties; twenty per cent. less in two counties; twenty-five per cent. less in fifteen counties, and less than thirty per cent. below an average crop in seventeen counties.

PLUMS.

The reports indicate the same area of plum orchards in thirty-eight counties; an increase of five per cent. in twenty-five counties; an increase of ten per cent. in fourteen counties; fifteen per cent. more in four counties; twenty per cent. more in two counties, and twenty-five per cent. more in two counties. There is a decrease in area of five per cent. in eight counties; ten per cent. in one county; fifteen per cent. in three counties, and twenty per cent. in one county.

There will be an average crop of plums in twenty-four counties; five per cent. more in eleven counties; ten per cent. more in three counties, and fifteen per cent. more in one county

There will be five per cent. less than an average crop in thirteen counties; ten per cent. less in seven counties; fifteen per cent. less in fourteen counties; twenty per cent. less in six counties; twenty-five per cent. less in nine counties, and less than thirty per cent. of an average crop in nine counties.

CHERRIES.

The same area is reported from thirty-six counties; five per cent. more in twenty-nine counties; ten per cent. more in twelve counties; fifteen per cent. more in eight counties; twenty per cent. more in two counties. There is five per cent. less area in eleven counties; ten per cent. less in two counties; fifteen per cent. less in one county, and twenty-five per cent. less in one county.

There will be an average crop in nineteen counties; five per cent. more than an average in ten counties; ten per cent. more in one county, and fifteen per cent. more in one county.

The crop will be five per cent. short in twenty-two counties; ten per cent. short in fourteen counties; fifteen per cent. short in eleven counties; twenty per cent. short in five counties; twenty-five per cent. short in nine counties, and more than thirty per cent. short in ten counties.

GRAPES.

There has been considerable increase in the area of grapes the past year; fifty-five counties report the same area; there is an increase of five per cent. in twenty-one counties; ten per cent. in seven counties, and fifteen per cent. in two counties.

In five counties there is a decrease of five per cent. in the area of grapes; ten per cent. less in three counties; fifteen per cent. less in three counties, and twenty-five per cent. less in one county.

The condition is promising for an average crop in fifty-one counties; five per cent. more than an average in twenty-six counties; ten per cent. more in six counties, and fifteen per cent. more in three counties.

The crop will be short five per cent. in fourteen counties; ten per cent. in two counties; fifteen per cent. in one county, and twenty-five per cent. below an average crop in one county.

STRAWBERRIES.

There will not be an average crop of strawberries, and the area devoted to this crop is not as large as last season.

Forty-three counties report the same area; fifteen counties five per cent. more, and five counties ten per cent. more. The area is reduced five per cent. in twenty-three counties; ten per cent. in seven counties; fifteen per cent. in six counties; twenty per cent. in two counties, and twenty-five per cent. in two counties.

There will be an average crop in twenty-eight counties; five per cent. more in thirteen counties; ten per cent. more in one county; fifteen per cent; more in one county; twenty per cent. more in one county, and twenty-five per cent. more in one county.

In twenty counties the crop will be short five per cent.; ten per cent. short in ten counties; fifteen per cent. short in sixteen counties; twenty per cent. short in two counties, and twenty-five per cent. short in nine counties.

RASPBERRIES.

Forty-eight counties report the same area as last season; there is an increase of five per cent. in thirteen counties; an increase of ten per cent. in four counties, and fifteen per cent. in one county. A decrease of five per cent. in twenty-two counties; fifteen per cent. in eight counties; twenty per cent. in one county; twenty-five per cent. in two counties, and one county thirty per cent. less area than 1879.

There is a good prospect for an average crop in forty-four counties; five per cent. more in sixteen counties: ten per cent. more in eight counties; fifteen per cent more in two counties, and thirty per cent. more in one county.

In eighteen counties there will be five per cent. less than an average crop; ten per cent. less in three counties; twenty per cent. less in two counties, and twenty-five per cent. less in two counties.

BLACKBERRIES.

There is no change in the area of blackberries since last season in thirty-eight counties; an increase of five per cent. in twenty-six counties: ten per cent. in twenty counties; fifteen per cent. in seven counties; twenty per cent. in one county; twenty-five per cent. in six counties, and forty-five per cent. increase in one county.

The condition promises an average crop in thirty-five counties; five per cent. more in twenty-six counties; ten per cent. more in sixteen counties; fifteen per cent. more in nine counties; twenty per cent. more in four counties; twenty-five per cent more in two counties; forty-five per cent. more in one county, and fifty per cent. more in one county.

The condition is five per cent. below an average in five counties, and fifteen per cent. below an average in two counties.

GOOSEBERRIES.

Forty-seven counties report the same area as in 1879; twenty counties show an increase of five per cent., and five counties an increase of ten per cent. Twenty counties show a decrease of five per cent.; six counties ten per cent., and four counties fifteen per cent.

There will be an average crop in thirty-eight counties; five per cent. more than an average in nineteen counties, and ten per cent. more in four counties. The condition is five per cent. below an average in seventeen counties; ten per cent. below in twelve counties; fifteen per cent. below in five counties; twenty per cent. below in three counties, and thirty-five per cent. below in two counties.

CURRANTS.

The same acreage as in 1879 is reported in forty-three counties; an increase of five per cent. in fourteen counties, and an increase of ten per cent. in one county. A decrease of of five per cent. in twenty counties; ten per cent. in five counties; fifteen per cent. in ten counties; twenty-five per cent. in two counties, and forty-five per cent. in one county.

The prospects are favorable for an average crop in thirty-three counties; an increase of five per cent. in eight counties, and an increase of ten per cent. in four counties.

The condition is five per cent. below an average in twenty-five counties; ten per cent. below in ten counties; fifteen per cent. below in eight counties; twenty per cent. below in four counties; twenty-five per cent. below in three counties; with one county thirty, one forty-five, and one fifty per cent. below an average in condition.

CROP PROSPECTS.

[Consolidation of reports returned to the Department of Agriculture, July 1, 1880.

SEASON.

The high temperature and humidity of the atmosphere the past month has been most favorable for the rapid growth of crops, sufficient rain having fallen in nearly every county in the State.

The excessive rains in many localities have interfered with harvest, making the ground too soft to admit of the use of reapers, and, in some counties, interfering with the much needed cultivation of corn.

There are but few complaints of wheat sprouting in the shock, and the loss therefrom is confined to localities.

The damage to crops on the river bottoms by overflow since the first of July will be mentioned in the next report.

The rainfall in the northern and southern divisions of the State exceeds that of the central division, as may be be seen by the meteorological report published elsewhere, which gives much interesting data concerning the weather at the several stations named for the month of June.

CORN.

This crop is fully up to the high condition reported last month; and while in some instances the cultivation has been somewhat interfered with in the wheat growing counties by the large grain harvest, the crop has received better attention than usual in the corn belt and to the northward, ensuring, with favorable weather, much more than an average yield per acre throughout the State.

The great advantage of the extensive use of drain tile in many counties of the State has never been more apparent than the present season, and the condition of growing corn on tile-drained land, without an exception, is reported as promising much more than an average yield per acre.

The heaviest rains of the season have been rapidly removed through the tiles, with but little delay to the plow.

The soil on drained land has been in such an excellent condition of tilth, and aided by such favorable weather, as to ensure the greatest vigor and most rapid growth of the plant.

Several correspondents report that the increased yield this season of corn now assured on drained land will more than pay the entire cost of drainage.

The late rains were most opportune, coming at the critical period just previous to, and at the time of earing, and removing any cause of fear that in due time the vigorous growth of stalks will be bending with the weight of large, well-filled ears of corn.

CONDITION.

In six counties the condition is fifteen per cent. above an average; in nineteen counties, ten per cent. above; in twenty-five counties, five per cent. above; an average in twenty counties; five per cent. below an average in eighteen counties; ten per cent. below in two counties; fifteen per cent. below in four counties; twenty per cent. below in two counties; twenty-five per cent. below in only three counties, and less that thirty per cent. below in only three counties.

WINTER WHEAT.

The condition of winter wheat has not materially changed during the last month. The then flattering prospects for an unusually large average yield per acre have been reduced somewhat in some counties and increased in others.

While the average yield per acre throughout the State will not be as large as last year, the wheat in some sections of the State will be equally as good, and the increased acreage will make up for the slightly reduced average yield.

The harvest commenced in the southern counties early in June, and as the ripening of the crop proceeded rapidly northward, the favorable reports concerning the crop have continued, confirming the early predictions of more than an average yield per acre of wheat.

The next crop report of the Department will give by counties the yield and value of the wheat crop for 1880, which will generally be threshed by that date, or to such an extent as to make it possible to nearly approach accuracy in the estimates.

The quality is from medium to good, and in contrast to the uniform high grade of the wheat crop of 1879, which was exceptionally fine in quality, and the large average yield per acre has never been equaled.

The reports are more numerous than last year concerning injury sustained by the Hessian-fly, chinch-bugs, rust, and from damage resulting from the freezing and thawing during the past winter and early spring.

The storms during and immediately after harvest have damaged the crop in many localities.

Due diligence in protecting the wheat as soon as in condition to stack would have saved a portion of the crop that has sprouted somewhat in shock.

CONDITION.

Winter wheat, in condition (or yield) is up to an average in nineteen counties; five per cent. above an average in twelve counties; ten per cent. above an average in seven counties; fifteen per cent above an average in three counties, and twenty per cent. above an average in one county; five per cent. below an average in ten counties; ten per cent. below in nine counties; fifteen per cent. below in three counties; twenty per cent. below in four counties; twenty-five per cent. below in thirteen counties, and thirty per cent. below an average in twenty counties.

SPRING WHEAT.

The prospects of this crop have not improved during the last month, and there is a decrease since the last report of thirteen in the number of counties reporting the condition of this crop.

There are many complaints of injury to spring wheat by chinch-bugs, which, in some localities, have destroyed the growing crop.

The territory occupied by spring wheat is limited, and the crop is being supplanted by fall wheat wherever the latter can be grown successfully.

CONDITION.

The condition is up to an average in eighteen counties; five per cent. above an average in three counties, and ten per cent. above an average in one county; five per cent. below an average in four counties; ten per cent. below an average in four counties; fifteen per cent. below in two counties; twenty per cent. below in three counties; twenty-five per cent. below in two counties, and thirty per cent. below in two counties.

OATS.

The condition of this crop has improved since last report, and, with few exceptions, the yield per acre where not lodged will be above an average.

There is great danger of extensive loss by lodging, owing to the rank growth of oat straw, and there is scarcely a county in which more or less loss is not reported from this cause.

CONDITION.

In twenty-four counties the condition is up to an average; five per cent. above in thirty-two counties; ten per cent. above in seventeen counties; fifteen per cent. above in seven counties; twenty per cent. above in one county, and twenty-five per cent. above in one county.

The condition is five per cent. below an average in seven counties; five per cent. below in two counties; fifteen per cent. below in four counties; twenty per cent. below in three counties; twenty-five per cent. below in one county, and more than twenty-five per cent. below in three counties.

RYE.

This crop is much more fully reported than last month and the condition has improved somewhat.

The condition indicates an average crop in forty counties; five per cent more than an average in eight counties, and ten per cent more than an average in two counties. In twenty counties the condition is five per cent. below an average; ten per cent. below in five counties; fifteen per cent below in seven counties; twenty per cent. below in three counties; twenty-five per cent. below in five counties.

BARLEY.

The prospects for barley are somewhat better than last season, and with favorable weather for saving the crop, the yield will compare favorably with that of previous good crops.

There will be an average crop in eighteen counties; five per cent. above in three counties, and ten per cent. above in one county.

In four counties the condition is five per cent. below an average; ten per cent. below in four counties; fifteen per cent. below in two counties; twenty per cent. below in three counties; twenty-five per cent below in two counties, and more than twenty-five per cent. below in two counties.

SORGHUM.

Sorghum cane has improved the past month and the condition promises an unusually large crop. The growth of cane is rank and the quality has not been improved by the excessive rains which have prevailed in some localities.

The condition is up to an average in thirty-nine counties; five per cent. above an average in six counties, and ten per cent. below an average in three counties.

The condition is within five per cent. of an average in twenty-two counties; ten per cent. below an average in five counties; fifteen per cent. below an average in nine counties; twenty per cent. below an average in four counties, and twenty-five per cent. below an average in three counties.

BROOM CORN.

Broom corn promises to make more than an average crop.

The condition is up to an average in thirty counties; five per cent. above an average in five counties; ten per cent. above an average in three counties, and twenty-five per cent. above an average in one county.

The condition is five per cent. below an average in eight counties; ten per cent. below an average in five counties; fifteen per cent. below an average in two counties; twenty per cent. below an average in five counties, and twenty-five per cent. below an average in three counties.

MEADOWS.

The prospects for a large hay crop have improved since last report and the conditions are very favorable for more than an average yield per acre in a majority of the counties in thn State. The quality, with few exceptions will be extra. There will be an average yield per acre in eighteen counties; five per cent. above an average in twenty-two counties; ten per cent. above an average in ten counties; fifteen per cent. above an average in three counties; twenty per cent. above an average in three counties; twenty-five per cent above in one county, and thirty per cent. above in one county.

The conditioh is within five per cent. of an average in twenty-nine counties; ten per cent. below an average in seven counties; fifteen per cent. below in five counties; twenty per cent. below in one county, and twenty-five per cent. below in three counties.

PASTURES.

The general rains throughout the State in the month of June greatly improved the condition of pastures, which, as a rule, is up to an average, or better.

The condition in thirty-two counties is up to an average; five per cent. above an average in twenty-five counties; ten per cent. above an average in nine counties; fifteen per cent. above an average in six counties; twenty-five per cent. above an average in two counties. In eighteen counties the condition is five per cent. below an average; ten per cent. below an average in eight counties; fifteen per cent. below an average in three counties.

IRISH POTATOES.

The season has been favorable to the growth of potatoes, and with continued good weather for this crop, the yield will be much above an average.

There are but few complaints of injury from insects.

The condition of the crop is up to an average in forty counties; five per cent. above in twenty-five counties; ten per cent. above in seven counties; fifteen per cent. above in ten counties; and twenty per cent. above in one county.

In twelve counties the condition is five per cent. below an average; in four counties, ten per cent. below; in two counties, fifteen per cent. below, and in one county, twenty-five per cent. below.

SWEET POTATOES.

Sweet potatoes are more extensively grown of late than heretofore, and the profits therefrom per acre compare favorably with that of any other field crop.

The crop is in a promising condition.

In fifty-three counties there will be an average yield per acre, and five per cent. more than an average yield in thirteen counties.

The crop is five per cent. below an average in seventeen counties; ten per cent. below an average in three counties; fifteen per cent. below in four counties; twenty per cent. below in one county.

FLAX.

This crop is grown in nearly half the counties in the State.

The condition of the growing crop promises about an average yield per acre.

In nineteen counties the condition is up to an average; five per cent. above in seven counties, and ten per cent. above in three counties.

The condition of flax is five per cent. below the average in six counties; ten per cent. below in four counties; fifteen per cent. below in two counties; twenty-five per cent. below in one county, and more than twenty-five per cent. below in one county.

TOBACCO.

The condition of tobacco has not improved during the past month. While some counties report better prospects more counties give a corresponding decrease in the prospects of the crop.

In fourteen counties the condition is up to an average; five per cent. above in one county, and ten per cent. above in one county.

The condition is five per cent. below an average in five counties; ten per cent. below in one county; fifteen per cent. below in four counties; twenty per cent. below in three counties; twenty-five per cent. below in two counties, and more than twenty-five per cent. below in one county.

COTTON.

This crop is reported in but four counties in the State, and the condition of each is reported as up to an average.

FIELD BEANS.

The profit attending the culture of this crop in some localities has had the effect of increasing the area.

Field beans are grown to some extent in seventy-seven counties, in fifty-two of which the crop is up to an average in condition: five per cent. above an average in two counties; ten per cent. above in one county, and twenty-five per cent. above in one county.

The condition is five per cent. below an average in seven counties; ten per cent. below in six counties; fifteen per cent. below in three counties; twenty per cent. below in two counties, and twenty-five per cent. below an average in three counties.

FIELD PEAS.

This crop receives more or less attention in forty-six counties, in thirty-four counties of which the condition is up to an average; in two counties the condition is five per cent. above an average, and in one county the condition is ten per cent. above an average.

The condition is five per cent. below an average in three counties; ten per cent. below in three counties; twenty per cent. below in two counties, and more than twenty-five per cent. below an average in one county.

CROP PROSPECTS.

[Consolidation of reports returned to the Department of Agriculture, August 2, 1892.]

SEASON.

The want of rain has been quite general throughout the State during the past month, and while the crops have not been seriously injured thereby, the continuance of dry weather can but result in largely reducing the prospect for corn, and preventing the growth of grass, much to the disadvantage of farm animals.

The dry weather has continued longer in the central and southern divisions of the State than elsewhere, and in some of the counties the late corn has been injured to such an extent as to give encouragement for only a small yield per acre. In some localities the wheat ground has been too dry to plow.

For further particulars concerning the weather, attention is invited to the meteorological table, published elsewhere in this report, as well as to the remarks of correspondents, which contain detailed information of the weather and its effect on the crops in all the counties in the State.

WHEAT.

The acreage of the wheat crop (spring and winter) harvested this season is the largest on record for this State, and, with the exception of the previous season, the average yield per acre has not been better during the last twenty-one years.

The crop was generally saved in good condition. The quality of winter wheat is not so uniformly good as last season, but compares favorably with that of average years. There is general complaint of the poor quality of spring wheat.

As large average yields per acre as realized last season are frequently reported.

The Fultz wheat is mentioned more frequently than other varieties in connection with large average yields per acre.

In some counties the rains early in July injured the wheat where not in stack, and the damage sustained by bleaching and sprouting, while exposed to the weather in shock, will induce farmers who have suffered thereby to protect future crops by stacking the grain as soon after harvest as practicable.

The area of spring (286,264) and winter (2,970,086) wheat is 3,256,350 acres, an increase over that of the previous year of 815,541 acres.

The average yield per acre of winter wheat is 18 bushels; of spring wheat, 9½ bushels. The small, unprofitable yield per acre of spring wheat reduces the average yield of the total wheat area of the State to 17½ bushels.

The present wheat crop of the State, as shown in the following table, is 56,508,309 bushels an increase over that of the largest previous crop (1879) of 11,090,648 bushels.

The present crop in farmers' hands is worth 82 cents per bushel, which is five cents per bushel less than paid at corresponding date in 1879.

The present crop, in first hands, is worth $46,497,160, and the cost for production, at the rate of $10.55 per acre is $34,854,550, leaving a net profit to the wheat growers of the State of $11,642,610.

The average cost of production per acre, as returned this season, has been used in the following table, covering the last 21 years, and will not be considered too high an estimate for the period named, during which time labor-saving harvesting machinery has been greatly improved, materially reducing the expenses of saving the grain crops.

It will be seen by an examination of the table published elsewhere that all the items of cost of production are taken into consideration, including rent or use of land, and that the present crop of wheat has been grown at a fraction over 60 cents per bushel, leaving a net profit, at present prices, of 20 cents per bushel.

The increased price per bushel received for wheat in 1864, 1866, 1867 and 1879, on smaller crops, have returned the producer more profit than the unparalleled large yield of the present season.

In 1866 the greatest profit on the wheat crop of the State was obtained by the farmers who received $1.93 per bushel. This crop netted $31,933,668 on about half the number of bushels harvested this season.

The wheat crop during the past 21 years (excepting 1860, 1861, 1869, 1874, 1875 and 1876) has returned each year a reasonable profit to the producer, and the favorable results attending wheat culture of late years will encourage farmers to considerable increase the acreage.

WHEAT—Spring and Winter.

Year.	Number of acres	Average yield per acre—bushels	Bushels produced	Price per bushel	Total value	Value per acre	*Cost per acre of production	Total cost of production	Profit	Loss
1860	2,109,471	11.3	23,837,023	85	$20,261,469	$9 60	$10 55	$22,254,919	.....	$1,993,450
1861	2,109,471	11.3	23,837,023	71	16,924,284	8 02	10 55	22,254,919	.....	5,330,635
1862	2,300,964	14	32,213,500	76	24,482,262	10 64	10 55	24,275,170	$207,092	.....
1863	2,617,347	12	31,408,163	$1 05	32,978,571	12 59	10 55	27,613,011	5,365,560	.....
1864	2,328,763	14.3	33,371,173	1 55	51,725,318	22 21	10 55	24,568,450	27,156,868	.....
1865	2,296,977	11	25,266,745	1 09	27,541,732	12 00	10 55	24,233,107	3,308,625	.....
1866	2,196,263	13	28,551,421	1 93	55,104,243	25 09	10 55	23,170,575	31,933,668	.....
1867	2,456,140	11.4	28,000,000	1 97	55,160,000	22 45	10 55	25,912,277	29,247,723	.....
1868	2,483,478	11.5	28,560,000	1 20	34,272,000	13 80	10 55	26,200,692	8,071,308	.....
1869	2,607,142	11.2	28,200,000	76	22,192,000	8 51	10 55	27,505,348	.....	5,313,348
1870	2,259,583	12	27,115,000	94	25,488,100	11 28	10 55	23,838,600	1,649,500	.....
1871	2,050,081	12.3	25,216,000	1 18	29,754,880	14 51	10 55	21,628,354	8,126,526	.....
1872	2,042,231	12.1	24,711,000	1 23	30,394,530	14 88	10 55	21,545,537	8,848,993	.....
1873	2,104,963	13.5	28,417,000	1 10	31,258,700	14 84	10 55	22,207,360	9,051,340	.....
1874	2,619,304	11.5	30,122,000	86	25,904,920	9 88	10 55	27,633,657	.....	1,728,737
1875	2,600,000	10.5	27,300,000	91	24,843,000	9 55	10 55	27,430,000	.....	2,587,000
1876	2,520,430	9.3	23,440,000	93	21,799,200	8 64	10 55	26,590,536	.....	4,791,336
1877	1,977,745	16.4	32,490,556	1 15	38,002,082	19 22	10 55	20,865,210	17,136,872	.....
1878	2,324,755	14.6	33,883,398	80	27,059,460	11 64	10 55	24,526,165	2,533,295	.....
1879	2,440,809	18¾	45,417,661	87	39,930,639	16 36	10 55	25,750,535	14,180,104	.....
1880	3,256,350	17½	56,508,309	82	46,497,160	14 27	10 55	34,854,550	11,642,610	.....

*Estimated same as reported for 1880.

WHEAT CONSUMPTION.

The consumption of wheat and the amount required for seed in the United States is estimated by authorities to be five bushels per capita per annum, which is one-half a bushel less than reported for Great Britain and some other portions of Europe.

The tenth census shows this State to have 3,083,416 inhabitants, who, upon this basis of five bushels per capita, consume and require for seed annually 15,417,080 bushels, leaving a surplus for export of 41,091,229 bushels.

This estimate for seed and consumption, while nearly approaching accuracy for the entire country with its large cities, densely populated districts and the extent of territory not adapted to successful wheat culture, cannot be applied to counties where wheat is extensively grown, in a number of which in this State nearly five bushels per capita are required for seed alone.

The better to illustrate the application of this estimate to some extreme counties in this State, attention is invited to the counties of Cook and Montgomery.

Cook county, with 606,801 inhabitants, and a wheat acreage of 4,097, requires 97,[illegible] bushels of wheat annually more than the 46,923 produced, while Montgomery, with a population of 28,161, grows 138,611 acres of wheat, yielding 3,185,859 bushels more than needed for seed and consumption.

In Montgomery county the allowance of five bushels per capita would not be sufficient to seed the acreage devoted to wheat this season, while the same allowance of five bushels to each inhabitant in Cook county would leave a large surplus over consumption for seed in other counties making a specialty of wheat culture, and thus are the extremes of some portions of the State harmonized. In twenty-seven counties in the State there is not sufficient wheat raised for seed and consumption, while fifteen wheat counties, having a surplus of over one million of bushels of wheat each, produced this season nearly half the surplus of 41,091,229 bushels over the amount required therein for seed and consumption.

The average amount of seed used per acre in this State is about one and one-half bushels, and to again seed at this rate the same acreage as harvested this season (3,256,350) would require 4,884,525 bushels of the present crop, leaving for consumption of the five bushels per capita allowance, 10,532,555, a fraction over 3.41 bushels for each person in the State.

OATS.

The following table gives the acerage, yield and value of the oat crop of the State since 1860. It will be seen that with the exception of six years of the period named, the crop has been grown at a loss to the producers.

The rich prairie soils induces a rank growth of straw, which is frequently prostrated by storms to such an extent as to make it impossible to save the crop.

The acreage of the present crop, 1,749,391, with three (1875, 1876, 1878) exceptions, is the largest heretofore reported, and the average yield per acre, 35 bushels, has been exceeded but twice (1872, 1877) during the last twenty-one years.

The total yield of the State is 62,709,002 bushels, the largest, with one exception, (1873) during the period named.

The crop, at 24 cents per bushel, is worth $12,858,247, and the cost of production at $9.40 per acre, is $17,375,108, or $4,516,861 less than the crop is worth in first hands at this date.

Year.	Number of acres.	Average yield per acre—bushels...	Bushels produced	Price per bushel—cents.....	Total value.....	Value per acre.....	*Cost per acre of production.....	Total cost of production.....	Profit.....	Loss.....
1860....	543,572	28	15,220,929	26	$3,957,207	$7 28	$9 40	$5,109,577	.....	$1,152,370
1861....	543,572	28	15,220,029	19	2,891,805	5 32	9 40	5,109,577	.....	2,217,772
1862....	894,610	20	17,892,200	24	4,294,128	4 80	9 40	8,409,334	.....	4,115,206
1863....	820,059	24	19,681,420	56	11,021,595	13 44	9 40	7,708,555	$3,313,040	.....
1864....	779,003	31 1-6	24,273,751	61	14,806,968	19 00	9 40	7,322,628	7,484,360	.....
1865....	802,520	35	28,088,197	24	6,741,167	8 40	9 40	7,543,688	.....	802,521
1866....	883,952	34	30,054,370	33	9,917,942	11 21	9 40	8,309,149	1,608,793	.....
1867....	1,068,372	30.1	32,158,000	49	15,757,420	14 74	9 40	10,042,697	5,714,723	.....
1868....	1,018,150	31.9	32,479,000	39	12,666,810	12 44	9 40	9,570,610	3,096,200	.....
1869....	1,099,261	32.5	35,726,000	37	13,218,620	12 02	9 40	10,333,053	2,885,567	.....
1870....	1,480,846	26	38,502,000	32	12,320,640	8 32	9 40	13,919,052	.....	1,599,312
1871....	1,163,202	33.1	38,502,000	28	10,780,560	9 26	9 40	10,934,099	.....	153,539
1872....	1,178,196	36.6	43,122,000	19	8,193,180	6 95	9 40	11,075,042	.....	2,881,862
1873....	1,178,666	30	35,360,000	28	9,900,800	8 31	9 40	11,079,460	.....	1,178,660
1874....	1,818,514	17.5	31,824,000	45	14,320,800	7 87	9 40	17,094,632	.....	2,773,832
1875....	2,272,727	33	75,000,000	28	21,000,000	9 24	9 40	21,363,634	.....	363,634
1876....	2,400,000	20	48,000,000	26	12,480,000	5 20	9 40	22,560,000	.....	10,080,000
1877....	1,556,194	39	61,145,983	26	16,269,647	10 45	9 40	14,628,224	1,641,423	.....
1878....	1,757,953	30.5	53,424,555	20	10,684,911	6 07	9 40	16,524,728	.....	5,839,817
1879....	1,631,139	33.5	54,664,569	22	12,059,162	7 39	9 40	15,332,706	.....	3,273,544
1880....	1,749,391	35	62,709,002	24	12,858,247	8 40	9 40	17,375,108	.....	4,516,861

* Estimated same as reported for 1880.

RYE.

This crop is largely grown for late fall, winter and early spring pasturage, and the returns of grain harvested and reported in the following table cover but a portion of the profit realized on the crop.

The table shows that the rye crop is uncertain when only the grain is considered, and has returned a profit in only ten out of twenty-one years reported.

The partial returns of assessors for 1879 show the acreage of rye to be 166,915 acres. The area reported by correspondents for 1879, and given in the following table, is 235,073 acres, which is considered by authorities to be nearer the actual extent of the crop.

The present crop of 2,737,159 bushels is valued at $1,513,587, and the cost for production, $1,515,235.

Year.	Number of acres	Average yield per acre—bushels	Bushels produced	Price per bushel	Total value	Value per acre	*Cost per acre of production	Total cost of production	Profit	Loss
1860	59,455	16	951,281	49	$466,127	$7 87	$9 80	$582,659	.....	$116,532
1861	59,455	16	952,281	44	323,435	5 44	9 80	582,659	.....	259,224
1862	49,066	20	981,322	43	421,968	8 60	9 80	480,847	.....	58,879
1863	55,199	16	833,190	74	653,561	11 84	9 80	540,950	$112,611	.....
1864	56,671	15	850,071	$1 01	862,822	15 22	9 80	555,376	307,446	.....
1865	51,004	16½	833,069	49	410,977	8 06	9 80	499,839	.....	88,862
1866	42,721	16.6	666,455	79	526,500	12 32	9 80	418,666	107,834	.....
1867	42,600	15	639,000	1 19	760,410	17 85	9 80	417,480	342,930	.....
1868	39,814	16.2	645,000	93	599,850	15 06	9 80	390,177	209,673	.....
1869	46,875	14.4	675,000	64	432,000	9 32	9 80	459,375	.....	27,375
1870	136,280	16.4	2,235,000	60	1,341,000	9 34	9 80	1,335,544	5,456	.....
1871	123,033	17.8	2,190,000	56	1,226,400	9 96	9 80	1,205,723	20,677	.....
1872	122,154	18.1	2,211,000	50	1,105,500	9 05	9 80	1,197,109	.....	91,609
1873	134,064	15.5	2,078,000	58	1,205,240	9 00	9 80	1,313,827	.....	108,587
1874	132,208	15.4	2,036,000	71	1,445,560	10 93	9 80	1,295,638	149,922	.....
1875	157,572	16.5	2,600,000	61	1,586,000	10 06	9 80	1,544,205	41,795	.....
1876	161,250	16	2,580,000	58	1,496,400	9 28	9 80	1,580,250	.....	83,850
1877	231,972	16	3,825,091	55	2,103,800	9 10	9 80	2,273,326	.....	169,526
1878	252,768	11	2,915,940	41	1,195,535	4 77	9 80	2,477,126	.....	1,281,591
1879	235,073	18	4,238,824	47	1,991,404	8 47	9 80	2,303,715	.....	312,311
1880	149,742	17	2,737,159	56	1,513,587	10 10	9 80	1,515,235	.....	1,648

*Estimated same as reported for 1880.

BARLEY.

This crop does not appear to be growing in favor with the farmers in this State, and an examination of the following table, giving the yield and value of the crop of late years, shows that it has not been grown with any considerable profit.

The acreage of barley, as returned by the assessors for 1879, is 43,016 acres, while that based on the estimates of correspondents for the same year, and published in the following table, is 25,494 acres; the last area was estimated on the last assessment (1878) available at time of making the report. The acreage of the 1880 crop is 39,313 acres, and the crop grown thereon 998,382 bushels.

The present crop is valued at $560,703, and the cost for production is estimated at $407,271; leaving a net profit of $153,432 on the crop. The item $407,271 includes remuneration for labor, use of teams, and other expenses for production.

The cost of production per acre, as reported for 1880, is used in determining the expenses attending the growing of this crop for the preceding twenty years.

The area, quantity, value, etc., of the barley crop of the State since 1860 is given in the following table:

Year.	Number of acres.	Average yield per acre	Bushels produced.	Price per bushel.	Total value.	Value per acre.	*Cost per acre of production.	Total cost of production.	Profit.	Loss.
1860	45,058	23	1,036,334	49	$507,803	$11 26	$10 55	$475,362	$32,441	.....
1861	45,058	23	1,036,334	26	269,446	5 97	10 55	475,362	.....	$205,916
1862	32,657	36	1,175,651	60	705,390	21 60	10 55	344,731	360,659	.....
1863	54,775	22	1,205,042	95	1,144,790	20 81	10 55	577,876	566,914	.....
1864	50,520	22⅔	1,144,790	$1 37	1,568,362	31 04	10 55	532,986	1,035,376	.....
1865	50,425	21	1,058,931	56¾	600,943	11 91	10 55	531,994	68,949	.....
1866	41,510	25	1,037,753	68	705,672	17 00	10 55	437,930	267,742	.....
1867	44,663	22.3	996,000	1 28	1,274,880	28 52	10 55	471,195	803,685	.....
1868	37,829	25.8	976,000	1 36	1,327,360	35 08	10 55	399,096	928,264	.....
1869	59,808	20.9	1,250,000	90	1,125,000	18 81	10 55	630,974	494,026	.....
1870	111,600	20	2,232,000	62	1,383,840	12 40	10 55	1,177,380	206,460	.....
1871	80,509	25.5	2,053,000	52	1,067,568	13 26	10 55	849,370	218,198	.....
1872	79,425	26.1	2,073,000	55	1,140,150	14 35	10 55	837,944	302,206	.....
1873	99,130	23	2,280,000	95	2,166,000	21 85	10 55	1,045,821	1,120,179	.....
1874	119,302	17.2	2,052,000	97	1,990,440	16 68	10 55	1,258,686	731,804	.....
1875	113,281	25.6	2,900,000	70	2,030,000	17 92	10 55	1,195,114	834,886	.....
1876	124,293	17.7	2,200,000	50	1,100,000	8 85	10 55	1,311,291	.....	211,291
1877	44,982	18.5	842,942	47	396,182	8 80	10 55	474,560	.....	78,378
1878	29,301	24	703,294	56	398,844	10 19	10 55	309,125	89,719	.....
1879	25,494	22¼	578,911	46	265,951	10 43	10 55	268,972	.....	3,021
1880	30,313	25	998,382	56	560,703	14 26	10 55	407,271	153,432	.....

* Estimated same as reported for 1880.

HAY.

The hay crop was generally saved in good condition, and is of excellent quality, except where allowed to get too ripe, which was frequently the case where wheat and small grains were extensively grown, requiring all available force to save the grain harvest. There is but little change in the acreage of meadows, when compared with that of the previous year. The 1879 acreage, as reported in the table published elsewhere in this report, was returned by assessors in May last, and is somewhat larger than the acreage for 1879, given in the following table, which was based upon the estimates of correspondents of this department. The acreage of meadows for 1880 is 2,259,857 acres; total yield, 3,486,584 tons; valued at $22,589,691. The total cost of production of this crop is $16,676,706; leaving a profit to the consumer of $5,912,985. All the counties in the State, except nine, report the crop as grown with profit. The cost of production per acre $7 35, including use of lands, cutting and marketing the hay, as reported for this season, has been used for the years mentioned in the table. The average yield per acre of hay is larger than last season, and the total yield of the State exceeds that of 1879 by 907,848 tons. The present crop of hay is nearly all timothy, as but little clover escaped the freezing and thawing weather of the past winter and spring. The 1880 hay crop will return the producer more money than any crop harvested since 1867.

Year.	Number of acres.	Average yield per acre—tons.	Tons produced.	Price per ton.	Total value.	Value per acre.	*Cost of production per acre.	Total cost of production.	Profit.	Loss.
1860	1,258,548	1.41	1,774,554	$9 90	$17,568,084	$13 95	$7 35	$9,250,328	8,317,756	.....
1861	1,258,548	1.41	1,774,554	9 90	17,568,084	13 95	7 35	9,250,328	8,317,756	.....
1862	1,348,724	1.7	2,292,831	8 00	18,342,648	13 60	7 35	9,913,121	8,429,527	.....
1863	1,161,707	1.5	1,742,552	11 50	20,039,348	17 25	7 35	8,538,546	11,500,802	.....
1864	1,444,483	1.5	2,166,725	15 33	33,215,894	23 00	7 35	10,616,950	22,598,944	.....
1865	1,733,380	1.5	2,600,070	9 30	24,180,651	13 95	7 35	12,740,343	11,440,308	.....
1866	1,591,880	1.47	2,340,063	9 27	21,692,384	13 62	7 35	11,700,318	9,992,066	.....
1867	1,778,000	1.5	2,667,000	9 73	25,949,910	14 59	7 35	13,068,300	12,881,610	.....
1868	1,905,000	1.4	2,667,000	10 00	26,670,000	14 00	7 35	14,001,750	12,668,250	.....
1869	1,761,006	1.59	2,800,000	9 87	27,636,000	15 69	7 35	12,943,394	14,692,606	.....
1870	1,605,932	1.18	1,895,000	10 74	20,352,300	12 67	7 35	11,803,600	8,548,700	.....

Year.	Number of acres	Average yield per acre—tons	Tons produced	Price per ton	Total value	Value per acre	*Cost of production per acre	Total cost of production	Profit	Loss
1871	1,403,053	1.31	1,838,000	$10 05	$18,471,900	$13 16	$7 35	$10,312,439	$8,159,461	.....
1872	1,428,888	1.35	1,929,000	9 47	18,267,630	12 78	7 35	10,502,327	7,765,303	.....
1873	1,880,000	1.25	2,350,000	8 75	20,562,500	10 93	7 35	13,818,000	6,744,500	.....
1874	1,860,417	1.2	2,232,500	10 49	23,418,925	12 58	7 35	13,674,064	9,744,861	.....
1875	2,226,277	1.37	3,050,000	9 73	29,676,500	13 33	7 35	16,363,136	7,016,864	.....
1876	2,500,000	1.40	3,500,000	6 68	23,380,000	9 35	7 35	18,375,000	5,005,000	.....
1877	2,443,360	1.65	4,044,967	5 43	21,971,368	9 99	7 35	17,958,696	4,012,672	.....
1878	2,368,854	1.45	4,255,471	4 70	19,994,341	8 44	7 35	17,411,077	2,583,264	.....
1879	2,161,760	1.20	2,578,736	6 37	16,428,012	7 60	7 35	15,888,936	539,076	.....
1880	2,259,857	1.5	3,486,584	6 50	22,589,691	9 75	7 35	16,676,706	5,912,985	.....

*Estimated same as reported for 1880.

CORN.

This crop is in much better condition than usual for the first of August, and excepting the previous season (1879), the prospects have not been more encouraging for a medium yield per acre since 1876, as will be seen from the following figures, which give the condition of corn at corresponding dates in all the counties of the State the last four years.

100 represents an average condition.

Year.	Over 100 per cent.	100 per cent.	75 to 95 per cent.	55 to 70 per cent.	Under 50 per cent.
1877, No. counties	3	11	48	27	13
1878, " "	4	13	66	18	1
1879, " "	62	15	23	2	.....
1880, " "	18	15	59	10	.....

Corn on wet, undrained land is generally weedy and in poor condition, owing to the dry weather early in the season, which prevailed in many counties in the State to such an extent as to prevent necessary cultivation. The crop, where well cultivated, is generally much in advance of former years in growth at corresponding date.

The prospects for an increased yield per acre, on land that was thoroughly cultivated and "laid by" at the proper time, are very encouraging, and will induce many corn-growers another season not to neglect the corn at the most critical period for the grain harvest, but to employ additional help, if necessary, to give the crop thorough and seasonable culture.

The practice of "laying by" corn after grain and hay harvest is not general, and is followed by few of the successful corn-growers, who have practically demonstrated the necessity of frequent and clean culture during the limited period that intervenes between planting and previous to the time of tasseling.

The rapid growth of weeds in corn fields not "laid by" in proper condition, during the grain and hay harvest, not only seriously injures the growing crop, but greatly increases the labor and expense of cultivation, as the height of the corn makes it necessary to use a single plow, which, when used with due care, can but break down and destroy considerable corn.

The great value of corn as a soiling crop is highly appreciated by dairymen and stock-feeders, who, each succeeding year, cultivate an increased acreage for feeding during the summer season, when the pastures usually fail.

CONDITION.

In order to give more detailed information concerning the crop in the principal corn-growing counties, the condition on the first of August, for the last three years, is given in the following table, from which it will be seen that the counties named produced nearly one-half the entire corn crop of the State in 1879:

Counties.	Yield in 1879—bushels.	1880—acreage, compared with 1879.	Condition, compared with an average.		
			Aug. 1, 1880.	Aug. 1, 1879.	Aug. 1, 1878.
Bureau	5,414,076	106	105	106	92
Champaign	7,877,485	93	93	108	85
Christian	6,454,224	66	98	110	62
Fulton	5,620,580	103	100	108	85
Hancock	5,986,245	100	101	95	[illegible]
Henry	6,719,112	105	98	104	[illegible]
Iroquois	8,034,642	96	80	110	100
Knox	6,581,358	106	91	110	[illegible]
LaSalle	9,042,390	99	93	104	[illegible]
Livingston	11,325,840	92	62	120	82
Logan	6,376,356	97	82	85	81
Macoupin	5,327,450	85	109	96	71
McLean	12,560,900	97	80	108	[illegible]
Mercer	5,447,500	106	98	100	100
Montgomery	6,421,200	73	103	119	50
Ogle	5,050,760	100	103	103	100
Sangamon	5,728,968	88	102	90	73
Vermilion	6,324,040	93	117	113	100
Warren	5,249,160	105	96	110	105
Whiteside	5,146,400	112	102	105	86
Total	136,688,686				

In counties where there has been sufficient rain since the first of August to keep the corn in vigorous condition, the prospects for corn have been reduced, from the figures given above, in proportion to the severity and continuance of the drouth.

The table published elsewhere, giving condition of corn by counties, shows that the prospect is encouraging for an average crop in thirty-four counties; five per cent. above in four counties, and ten per cent. above in two counties. In nineteen counties the condition is five per cent. below an average; ten per cent. below in seven counties; fifteen per cent. below in nine counties; twenty per cent. below in six counties; twenty-five per cent. below in five counties, and below twenty-five per cent. in five counties.

BROOM CORN.

The condition of this crop has not improved during the last month, and in thirty out of the sixty-four counties reporting the crop, the condition is up to an average; five per cent above an average in four counties; ten per cent. above an average in three counties, and fifteen per cent. below an average in one county.

The condition is five per cent. below an average in five counties; ten per cent. below an average in seven counties; fifteen per cent. below in two counties; twenty per cent. below in three counties; twenty-five per cent. below in four counties, and below twenty-five per cent. of an average in four counties.

SORGHUM CANE.

Sorghum cane does not appear, from the reports, to have suffered to such an extent from the drouth as corn.

IRISH POTATOES.

The prospects are encouraging for an average, or better, crop of Irish potatoes in thirty-eight counties, in sixteen of which the condition indicates an average crop; thirty counties, five per cent. more than an average; five counties, ten per cent. more; three counties, twenty per cent. more, and one county twenty-five per cent. more than an average.

The condition is five per cent. below an average in nineteen counties; ten per cent. below in fourteen counties; fifteen per cent. below in twelve counties; twenty per cent. below in three counties; twenty-five per cent. below an average in nine counties, and more than twenty-five per cent. below an average in condition in seven counties.

SWEET POTATOES.

Sweet potatoes are in much better condition than Irish potatoes, and the table indicates an average, or better, crop in forty-eight counties, forty counties of which promise an average yield per acre; four counties, five per cent. more than an average; three counties, ten per cent. more than an average, and one county twenty per cent. more than an average.

The condition is five per cent. below an average in twenty-two counties; ten per cent. below in eleven counties; fifteen per cent. below in five counties; twenty per cent. below in four counties; twenty-five per cent. below in six counties, and more than twenty-five per cent. below in two counties.

TOBACCO.

Doubtless owing to the dry weather, there has been no improvement in the condition of this crop during the past month, as may be seen by comparing the present condition with that at time of making last report; the condition, as reported July 1, is enclosed in parenthesis:

The condition is ten per cent. above an average in 0 (1) county; five per cent. above in two (1) counties; an average in thirteen (14) counties; five per cent. below in five (5) counties; ten per cent. below in five (1) counties; fifteen per cent. below in three (4) counties; twenty per cent. below in two (3) counties; twenty-five per cent. below in five (2) counties, and more than twenty-five per cent. below in two (1) counties.

HEMP.

This crop is reported in one county, in which the acreage is as large as last season. The condition promises hardly two-thirds of an average yield per acre.

CASTOR BEANS.

The condition is reported an average or better in seven counties, and below an average in seven counties. The prospect is encouraging for nearly an average yield per acre in the counties where this crop is grown.

COTTON.

The crop is up to an average in but one county; ten per cent. below an average in three counties; twenty per cent. below in one county, and twenty-five per cent. below an average in one county. The report includes two counties not heretofore reported.

BUCKWHEAT.

This crop is reported as receiving more or less attention in seventy-four counties, thirty of which report the same acreage as last year; three counties five per cent. more; three counties ten per cent. more; two counties twenty-five per cent. more, and one county thirty per cent. more. The acreage is less than last season in thirty-five counties; five per cent. less in eight counties; ten per cent. less in six counties; fifteen per cent. less in six counties; twenty per cent. less in two counties; twenty-five per cent. less in seven counties, and more than twenty-five per cent. less in six counties.

Condition promises an average yield per acre in thirty-one counties; five per cent. more than an average in two counties; twenty-five per cent. more in one county, and fifty per cent. more in one county. The condition is five per cent. below an average in ten counties; ten per cent below in eleven counties; fifteen per cent. below in six counties, and less than twenty-five per cent. below in three counties.

TURNIPS AND OTHER ROOT CROPS.

More attention is paid to the cultivation of root crops in this State than heretofore, and eighty-five out of the one hundred and two counties in the State report the acreage and condition of these crops:

Forty-nine counties report the same acreage as last season; three counties five per cent. more, and one county twenty per cent. more; in nine counties five per cent. less acreage is reported; six counties ten per cent. less; four counties fifteen per cent. less; five counties twenty per cent. less; six counties twenty-five per cent. less, and more than twenty-five per cent. less acreage in two counties.

Condition is up to an average in thirty-six counties; five per cent. above in four counties. In ten counties the condition is five per cent. below an average; ten per cent. below in seven counties; fifteen per cent. below in six counties; twenty per cent. below in nine counties; twenty-five per cent. below in four counties, and more than twenty-five per cent. below in five counties.

BEANS.

This crop is reported in seventy-eight counties, forty of which report good prospects for an average crop; in two counties the condition is five per cent. above an average; ten per cent. above in one county, and fifteen per cent above in one county. The condition is five per cent. below an average in ten counties; ten per cent. below in seven counties; fifteen per cent. below in seven counties; twenty per cent. below in two counties; twenty-five per cent. below in three counties, and more than twenty-five per cent. below an average in five counties.

PEAS.

This crop receives field culture in only twenty-nine counties; twenty-one of which report an average crop; four counties five per cent. below an average; one county ten per cent. below an average: one county twenty per cent. below; two counties twenty-five per cent. below an average.

FRUIT.

APPLES.

The reports indicate an average crop in eighteen counties; five per cent. above in twenty-one counties; ten per cent. above in four counties; fifteen per cent. above in two counties; twenty-five per cent. above in two counties; thirty per cent. above in one county, and thirty-five per cent. above in one county. In eighteen counties the condition is five per cent. below an average; eight counties, ten per cent. below; eleven counties fifteen per cent. below; three counties, twenty per cent. below; in seven counties, twenty-five per cent. below an average, and more than twenty-five per cent. below an average in six counties.

PEACHES.

This crop is better than for several years, and is an average, or better, in one-half the counties in the State. In twenty-one counties there will be an average crop; in twelve counties, five per cent. more than an average; in seven counties, ten per cent. more than an average; in two counties, fifteen per cent. more; in five counties, twenty-five per cent more; in one county, thirty-five per cent. more; in one county, fifty per cent. more; in one county, one hundred and twenty-five per cent. more than an average. The crop is five per cent. less than an average in ten counties; ten per cent. less in eight counties; fifteen per cent. less in nine counties; twenty-five per cent. less in six counties, and more than twenty-five per cent. below in three counties.

PEARS.

This crop is from fair to excellent in nearly all the counties in the State. In thirty-nine counties there will be an average crop; in twelve counties, five per cent. more than an average; in four counties, ten per cent. more; in three counties, fifteen per cent. more; in two counties, twenty per cent. more. The crop in five counties will be five per cent. below an average; in three counties, ten per cent. below; in nine counties, fifteen per cent. below; in three counties, twenty per cent. below; in five counties, twenty-five per cent. below, and in seven counties, more than twenty-five per cent. below.

PLUMS.

The reports indicate an average crop in thirty-three counties; five per cent. more in eight counties: ten per cent. more in six counties; fifteen per cent. more in one county; twenty per cent. more in one county, and twenty-five per cent. more in one county. The crop will be short—five per cent. in fourteen counties; ten per cent. in five counties; fifteen per cent. in seven counties; twenty per cent in five counties; twenty-five per cent. in five counties, and more than twenty-five per cent. short in six counties.

GRAPES.

There will be an average crop in twenty-six counties; five per cent. more than an average in twenty-seven counties; ten per cent. more than an average in eight counties; fifteen per cent. more in one county; twenty per cent. more in one county; twenty-five per cent. more in one county. The reports indicate five per cent. less than an average crop in seventeen counties; ten per cent. less in nine counties; fifteen per cent. less in seven counties; twenty per cent. less in two counties, and more than twenty-five per cent. below in two counties.

BLACKBERRIES.

There was an average crop of blackberries in eighteen counties; five per cent. more in nineteen counties; ten per cent. more in seventeen counties; fifteen per cent. more in eighteen counties; twenty per cent. more in six counties; twenty-five per cent. more in seven counties; thirty-five per cent. more in three counties, and forty-five per cent. more in one county. The crop was short five per cent. in four counties; ten per cent. short in two counties; fifteen per cent. short in two counties; twenty per cent. short in one county, and twenty-five per cent. short in one county.

QUINCES.

The prospects of this crop are not fully reported, and the tables published elsewhere include but fifty-one counties, in twenty-four of which the condition is up to an average; five per cent. above an average in two counties; ten per cent. above in two counties, and twenty per cent. above in one county. There will be five per cent. less than an average crop in five counties; ten per cent. less in three counties; fifteen per cent. less in nine counties; twenty per cent. less in one county, and twenty-five per cent. less in four counties.

FAT CATTLE.

The last assessment (May, 1880,) gives the aggregate number of cattle, of all ages, in the State, as nearly two million head (1,999,788), an increase over the assessment (1,862,265) of that of the previous year of 137,523 head.

This increase is largely attributed to the more careful and complete assessment of the present year, when compared with that of the previous season.

The formidable competitor of Illinois cattle-feeders (the Western ranchmen) has of late years shipped to our markets large numbers of high grade cattle of good quality, at a cost for production that gives but little encouragement for successful competition in the future, except with the choicest specimens of early matured steers.

The unfavorable returns from shipments of average lots of fat cattle of late years, has compelled many large feeders in this State to abandon the business, and the corn belt noted for its contribution annually to the best markets, of large numbers of superior fat cattle, is now producing millions of bushels of wheat and other grains, on land almost exclusively used, until of late years, for the production of corn and blue grass, for feeding cattle and hogs.

There is a decrease of over ten thousand (10,027) head in the number of fat cattle feeding for this season's market, when compared with that of 1879. Last season there were four hundred thousand (409,982) head of fat cattle marketed in this State, and the returns indicate 399,955 head of fat cattle for 1880. The same estimate is used this season as returned by correspondents last year, as to the proportion of total number of cattle assessed that will be marketed, and is believed to be a moderate estimate.

The leading dairy county of the State reports 17 per cent. of the total number of cattle assessed as fatted for market last season; while some of the counties largely engaged in feeding cattle, report more than 20 per cent., which is found to be the average for the State. In some counties of this State, where the feeding cattle are purchased largely in other States, and fed but one season before shipment, the estimate will be too low; but such cases are the exception, and no one conversant with the facts will be misled by the table published elsewhere, giving, by counties, the number of cattle being prepared for this season's market.

FAT HOGS.

The number of hogs assessed May 1, 1880, is 3,133,557, and exceeds that of any previous year, excepting 1872, 1873, 1874 and 1878. The number of hogs assessed in 1879 was 2,799,051, or 334,506 less than this season.

The best data at command shows that during the last three years, 70 per cent. each year of the total number of hogs assessed in this State, have been marketed, and the same per cent. has been used in determining the number of hogs feeding for the 1880 market. In 1879, 1,984,294 fat hogs were marketed in this State, and the table published elsewhere shows 2,193,487 head of hogs for market this season; an increase of over two hundred thousand (209,193) head in favor of this season.

The condition of hogs throughout the State, with few exceptions, is much above an average, and there is less complaint than usual of diseases affecting swine.

Ths value and weight of the hog crop for this season will be largely influenced by the extent of the present corn crop, which will not be up to an average in yield or quality, owing to the effects of the drouth, which has generally prevailed throughout the State during the last of July and most of August.

FAT SHEEP.

The interest in sheep husbandry has been increasing for some years, and the assessment for 1880 shows a larger number of sheep in this State than in any year since 1874, and more than in any previous year, excepting the period intervening between 1863 and 1874. The ratio of increase in the number of sheep during the past six years has not been uniform, but the profits of this industry, of late years, have been satisfactory, and the future prospects for remunerative prices for wool and mutton are such as to inspire confidence in the future of sheep-breeding. The assessment this season shows 964,696 head of sheep, an increase of 117,595 head over that of the previous year.

The proportion of sheep heretofore fatted for market each year according to previous estimates of authorities, is about 20 per cent. of the total number of sheep assessed, and this rate has been used in determining the number of fat sheep that will be marketed during the present year. In 1879 there were 174,313 head of fat sheep marketed in this State, and as will be seen by the table published elsewhere, there will be 192,939 fat sheep prepared for market this season, an increase of 18,626 over that of the previous year.

The sheep marketed of late are reported to be heavier, of better quality, and more profitable for the feeder. This increase in weight and the improvement in quality furnishes unmistakable evidence of the increased attention given by breeders to the improvement of the breeds of sheep.

INCOMPLETE RETURNS.

The following table gives the aggregate of the returns of agricultural statistics of the State by assessors for the last three years, and while 8,777,006 acres are not included in the returns for 1879, it will not be difficult to approximate the proportionate area of the various crops cultivated thereon by applying the per cent. of area of the crops grown on the land reported by assessors.

It will be seen by an examination of the table that a fraction over 21 per cent. of the area reported was occupied by corn, and over 7 per cent. of the acreage reported was devoted to winter wheat, and presuming the same rates to apply to the area (8,777,006 acres) not included in the returns of assessors, it would increase the corn area of the State 1,843,171 acres, making the total corn area of the State for 1879, 9,435,323 acres, which, at 38 bushels per acre, would make 358,542,264 bushels, an increase of 52,628,887 bushels of corn more than reported last season.

The wheat area on the same basis would be increased at the rate of 7 per cent. of the area (8,777,006 acres) not included in the returns of assessors, and would make 3,055,199 acres for 1879, or 614,390 more than included in the returns for 1879.

The average yield per acre of wheat in 1879 was 18¾ bushels per acre, which on the entire area of 3,055,199 acres would make the entire wheat crop of the State for the past year 57,282,971 bushels, an increase of 11,865,310 bushels more than named in the 1879 report.

The increase in acreage of the other crops, in the proportion they bear to the acreage of the State as reported, if applied to the acreage not returned, would nearly approach the extent of area occupied by the various crops grown in the State.

Agricultural Statistics as Returned by Assessors.

Farm Crops, etc.	No. acres 1877.	No. bushels produced 1877.	No. acres 1878.	No. bushels produced 1878.	Per cent. of area to total acreage in State 1878	No. acres 1879.	No. bushels produced 1879.	Per cent. of area to total acreage in State 1879
Corn	7,654,474	217,046,190	6,649,226	193,080,845	19.332	7,592,152	274,101,628	21.9989
Winter wheat	1,500,680	21,377,023	1,806,651	23,293,388	5.252	2,427,481	43,663,284	7.0338
Spring wheat	176,058	2,260,343	221,795	3,075,314	0.645	274,899	2,725,490	0.7096
Oats	1,474,210	49,748,473	1,536,904	53,424,555	4.468	1,703,843	61,665,473	4.9370
Apple orchard	272,942	5,395,351	244,547	4,940,811	0.702	281,030	5,958,690	0.8143
Peach orchard	12,862	402,587	13,299	607,292	0.038	5,912	25,749	0.0171
Pear orchard	628	16,818	834	13,510	0.002	641	6,134	0.0018
		No. gallons wine made 1877.		No. gallons wine made 1878.			No. gallons wine made 1879.	
Vineyards	2,612	159,944	5,178	142,964	0.015	2,899	326,323	0.0086
		No. t'ns produced 1877.		No. t'ns produced 1878.			No. t'ns produced 1879.	
Timothy meadow	1,741,069	2,241,816	1,520,889	2,056,838	4.421	1,647,443	1,637,525	4.7738
Clover meadow	105,832	145,155	122,958	176,635	0.354	174,461	215,677	0.5061
Prairie meadow	450,947	514,948	385,868	448,658	1.122	442,046	483,064	1.3906
Hungarian and Millet	16,834	23,076	10,241	19,358	0.029	13,995	25,764	0.0405
		No. bushels produced 1877.		No. bushels produced 1878.			No. bushels produced 1879.	
Rye	231,972	3,825,091	233,191	2,915,940	0.678	166,915	2,648,893	0.0483
Barley	44,982	842,942	26,164	703,294	0.076	43,227	980,250	0.1252
Buckwheat	15,880	207,696	16,060	155,340	0.047	10,786	112,180	0.0312
Castor beans	4,503	17,738	361	2,526	0.001	3,084	24,344	0.0081
Beans	1,545	19,944	1,669	18,627	0.004	2,674	36,217	0.0077
Peas	521	13,283	537	21,410	0.001	779	42,688	0.0029
Irish potatoes	95,717	6,795,349	81,460	5,095,477	0.237	92,439	6,685,990	0.2678
Sweet potatoes	2,355	148,270	1,729	116,944	0.005	1,423	126,169	0.0041
		No. pounds produced 1877.		No. pounds produced 1878.			No. pounds produced 1879.	
Tobacco	12,320	7,885,586	3,883	2,369,492	0.011	3,079	2,741,[illegible]	[illegible]

Cotton (lint)	89,304	6,178,693	96,179	5,509,518	0.279	174,927	8,493,998	0.5068
Flax (fibre)								
		No. gallons syrup made 1877.		No. gallons syrup made 1878.			No. gallons syrup made 1879.	
Sorgo	19,335	1,227,164	14,638	1,174,549	0.042	17,883	1,309,400	0.0518
		Val. of crops produced 1877.		Val. of crops produced 1878.			Val. of crops produced 1879.	
Turnip and other root crops	7,057	$279,136	3,775	$154,149	0.011	3,139	$722,444	0.0091
Other fruits and berries	4,523	178,800	3,559	197,581	0.013	3,111	185,488	0.0090
Other crops not named above	62,069	299,543	20,813	157,862	0.065	29,639	526,189	0.0858
Pasture	3,612,614	.....	3,800,211	.....	11.049	4,242,713	.....	12.2936
Woodland	3,625,756	.....	3,771,015	.....	10.863	3,708,567	.....	10.7459
Uncultivated land	1,745,643	.....	2,300,200	.....	6.687	2,380,228	.....	6.8969
Area city and town real estate not included above	287,736	.....	254,111	.....	0.738	272,127	.....	0.7885
Acreage not reported	11,223,539	.....	11,333,677	.....	32.612	8,770,006	.....	25.4118
Total number of acres in State	34,511,444	.....	34,511,444	.....	100.	34,511,444	.....	100.

Live Stock, etc.	Quantity or value, 1877.	Quantity or value, 1878.	Quantity or value, 1879.
SHEEP.			
Sheep killed by dogs—number	39,649	26,047	[illegible]
Total value sheep killed by dogs—dollars	90,796	69,936	[illegible]
Number pounds of wool shorn	3,291,677	2,891,007	[illegible]
Number fat sheep shorn	241,422	144,762	[illegible]
Total gross weight fat sheep sold	23,176,512	12,531,597	[illegible]
DAIRY.			
Cows, number kept	556,466	508,753	[illegible]
Pounds butter sold	18,970,227	17,997,652	[illegible]
Pounds cheese sold	4,502,671	5,139,914	[illegible]
Gallons cream sold	2,744,259	62,707	[illegible]
Gallons milk sold	17,124,506	30,567,415	[illegible]
HORSES.			
Number colts foaled	.....	.....	[illegible]
Number horses, any age, died	.....	.....	[illegible]
CATTLE.			
Number fat cattle sold	423,984	357,816	[illegible]
Total gross weight fat cattle sold	448,151,068	365,458,112	[illegible]
HOGS.			
Number fat hogs sold	2,455,573	2,271,493	[illegible]
Total gross weight fat hogs sold	618,804,396	550,955,097	[illegible]
Number hogs and pigs died of cholera	1,445,268	1,391,422	[illegible]
Total gross weight of swine died of cholera	106,949,832	139,853,508	[illegible]
CROPS, ETC.			
Number bushels timothy seed produced	483,571	261,559	[illegible]
Number bushels clover seed produced	64,686	77,388	[illegible]
Number bushels Hungarian and millet seed produced	16,463	26,787	[illegible]
Number bushels cotton seed produced	2,286	4,959	[illegible]
Number bushels flax seed produced	698,839	971,015	[illegible]
Number pounds grapes produced	3,092,748	1,922,636	[illegible]

CROPS FOR 1880.

ILLINOIS DEPARTMENT OF AGRICULTURE.
SPRINGFIELD, December 31, 1880.

SEASON.

There has been much complaint of drouth the past season in some portions of the State, which has had the effect of reducing the yield in such localities, as well as to injure the quality of some of the crops.

The Meteorological tables, published elsewhere, show that some portions of the State have had about the average rainfall, while in other sections there has been a scarcity of water, which has necessitated the sale, at great sacrifice, of live stock that were not in condition for market.

The annual rainfall in the three divisions of the State for the last three years, compiled from the returns made to this department, is as follows:

Year.	Northern Division.	Central Division.	Southern Division.	Average.
1878	31.40	36.67	41.14	36.40
1879	32.02	25.94	41.38	33.11
1880	41.13	33.70	42.74	38.86
Average	34.85	32.10	41.75	36.12

The better distribution of the rainfall of 1879 during the growing season made the complaints of drouth less frequent than in 1880. The rainfall, as shown in the foregoing table, was 33.11 inches in 1879 and 38.86 inches in 1880, a difference in favor of the past year of over fifteen per cent.

The average rainfall of the State from 1840 to 1879 is 38.22 inches, and is less than that of the year 1880, which was 39.19 inches.

The average yearly rainfall of the State from 1840 to 1847 was 41.37 inches; from 1848 to 1855, 39.12 inches; from 1856 to 1863, 36.04 inches; from 1864 to 1871, 37.26 inches; from 1872 to 1879, 35.82 inches.

It will be seen that the average annual rainfall from 1840 to 1847, of 41.37 inches, is 5.55 inches less than the average annual rainfall from 1872 to 1879, of 35.82 inches, while the annual rainfall of 1880, of 39.19 inches, exceeds the average annual rainfall from 1840 to 1879, of 38.22 inches, by .97.

For detailed information concerning the weather, attention is invited to the meteorological tables, published elsewhere in this report, as well as to the remarks of correspondents, which contain detailed information of the weather and its effect on the crops in all the counties in the State.

CORN.

The yield per acre the past season is somewhat over the average for a period covering the past 21 years, but is less than the average of 1879 by five bushels per acre.

The improved methods of farming recently adopted by many of the farmers in the corn belt have had much to do with the yield obtained this season, which is a fair average considering the protracted drouth in the central division of the State.

The largest average yields of corn are reported as grown on low and flat lands that have recently been reclaimed by drainage.

The average yield of corn per acre for the State this season is 33 bushels, and has been exceeded during the past 21 years as follows: 1862, 40 bushels; 1865, 35¼ bushels; 1868, 34 bushels; 1870, 45.2 bushels; 1871, 38.3 bushels; 1872, 39.8 bushels; 1875, 34.3 bushels, and 1879, 38 bushels.

The present corn crop of 250,697,036 bushels, with the exception of the following years, is the largest on record, viz: 1875, 280,000,000 bushels; 1877, 269,899,742 bushels, and 1879, 305,913,377 bushels.

The 1880 acreage of corn is 7,574,545, and is less than that of any of the preceding five years.

The profits attending wheat culture of late years have increased the wheat acreage at the expense of the corn area of the State.

The quality of corn in many counties will not compare favorably with that of the previous year, owing to the dry season, and, in some sections, to the injury sustained by chinch bugs.

The early, cold winter weather was unfavorable for gathering the crop, and there is an unusually large proportion of the corn in the fields, which has been damaged by snows and rains.

The average price per bushel realized for the 1880 corn crop is 33 cents, which is six cents per bushel less than the average price (39 cents) for the past 21 years.

CORN.

Year.	Number of acres	Average yield per acre—bushels	Bushels produced	Price per bushel—cents	Total value	Value per acre	*Cost of production per acre	Total cost of production	Profit	Loss
1860	3,839,159	30	115,174,770	42½	$48,944,277	$12 74	$10 50	$40,311,169	$8,633,108	.....
1861	3,839,159	30	115,174,770	24	27,641,944	7 00	10 50	40,311,169	.....	$12,669,225
1862	3,458,903	40	138,356,135	23	32,821,911	9 49	10 50	36,318,481	.....	3,496,570
1863	3,773,349	22	83,013,681	62	51,479,442	13 64	10 50	39,620,164	11,859,278	.....
1864	4,192,610	33	238,356,138	75	103,767,101	24 75	10 50	44,022,405	59,744,696	.....
1865	5,023,996	35¼	177,005,852	29½	51,800,536	10 31	10 50	52,751,958	.....	951,422
1866	4,931,783	31.6	155,844,350	43	67,013,070	13 58	10 50	51,783,721	15,229,349	.....
1867	4,583,655	23.8	109,091,000	68	74,281,880	16 20	10 40	48,128,377	26,153,503	.....
1868	3,928,742	34.2	134,353,000	43	57,776,090	14 70	10 50	41,251,791	16,524,299	.....
1869	5,237,068	23.2	121,500,000	57	69,255,000	13 22	10 50	54,989,214	14,265,786	.....
1870	5,720,965	35.2	201,378,000	35	70,482,300	12 32	10 50	60,070,132	10,412,168	.....
1871	5,310,469	38.3	203,391,000	32	65,085,120	12 25	10 50	55,759,924	9,325,196	.....
1872	5,468,040	39.8	217,628,000	24	52,230,720	9 53	10 50	57,414,420	.....	5,183,700
1873	6,839,714	21	143,634,000	32	45,962,880	6 72	10 50	71,816,997	.....	25,854,117
1874	7,421,055	18	133,579,000	56	74,804,240	10 08	10 50	77,921,077	.....	3,116,837
1875	8,163,265	34.3	280,000,000	34	95,200,000	11 66	10 50	85,714,282	9,485,718	.....
1876	8,920,000	25	223,000,000	31	69,130,000	7 75	10 50	93,660,000	.....	24,530,000
1877	8,935,411	30	268,089,742	28	77,562,879	8 68	10 50	93,821,815	.....	16,258,936
1878	8,672,088	29	250,560,810	22	56,035,842	6 46	10 50	91,056,924	.....	35,021,082
1879	7,918,881	38	305,913,377	32	97,483,052	12 16	10 50	83,148,250	14,334,802	.....
1880	7,574,545	33	250,097,036	33	83,757,039	11 56	10 50	79,411,857	4,345,182	.....

*Estimated same as reported for 1880.

The Illinois corn crop since 1860, as shown by the foregoing table, is valued at $1,372,515,323, and the cost of producing the same $1,299,284,127, which, with the loss sustained on the crop for the years noted of $127,081,889, leaves the farmers a net profit for the past 21 years on this single crop of $73,231,196, an amount which has had much to do with the development of the vast resources of the State.

The corn crop should be further credited with the profits realized from feeding the same to stock and for manufacturing purposes.

WHEAT.

The present acreage (3,049,631) of winter wheat is the largest on record, and estimating the next spring wheat area (286,264 acres) the same as the last, the total wheat area of the State for 1881 will be 3,332,895 acres.

The following table shows that the spring and winter wheat crops of the State since 1860 are valued at $681,574,550, that the cost of producing the same is $524,858,972, which, added to the loss on the wheat crops of 1860-61-69-74-75 and 1876, amounting to $21,744,506, leaves a balance of profit to the credit of the wheat crop of $134,974,072. The net profit to producers on the two leading crops (corn and wheat) grown in the State the past four years are as follows:

Year.	Corn.		Wheat.
	Loss.	Profit.	Profit.
1877	$16,258,936	.....	$17,196,872
1878	35,021,082	.....	2,533,295
1879	.....	$14,334,802	14,180,164
1880	.....	4,345,182	11,642,610
Total	$51,279,018	$18,679,984	$45,692,881

One-third of the total profit on the wheat crop of the State during the past twenty-one years was obtained from the last four crops.

The success attending the efforts of farmers in wheat culture of late years is largely owing to the more thorough preparation of the seed bed; care in the selection of seed; the use of improved machinery, and the benefits resulting from the extensive system of drainage which is being carried out in many counties in the State.

It will be seen from the foregoing table that the profits on the wheat crop of the State the past four years is $45,692,881, while there has been a loss on the corn crop of the State for the same period of $32,599,034, this loss occurring in the first two years of that period, the last two years showing each year a profit.

It is claimed that the profit on corn in the production of meat and the manufacture into spirits during the last four years would largely offset the loss sustained on the corn crops of 1877 and 1878, but the figures show that the aggregate profits of late years on wheat and corn are largely in favor of wheat.

The following table gives interesting data concerning the extent and value of the wheat crop of the State during the past twenty-one years:

WHEAT—Spring and Winter.

Year.	Number of acres	Average yield per acre—bushels	Bushels produced	Price per bushel	Total value	Value per acre	* Cost per acre of production	Total cost of production	Profit	Loss
1860	2,109,471	11.3	23,837,023	$ 85	$20,261,469	$9 60	$10 55	$22,254,919	.....	$1,993,450
1861	2,109,471	11.3	23,837,023	71	16,924,284	8 02	10 55	22,254,919	.....	5,330,635
1862	2,300,964	14	32,213,500	76	24,482,262	10 64	10 55	24,275,170	$207,092	.....
1863	2,617,347	12	31,408,163	1 05	32,978,571	12 59	10 55	27,613,011	5,365,560	.....
1864	2,328,763	14.3	33,371,173	1 55	51,725,318	22 21	10 55	24,568,450	27,156,868	.....
1865	2,296,977	11	25,266,745	1 09	27,541,732	12 00	10 55	24,233,107	3,308,625	.....
1866	2,196,263	13	28,551,421	1 93	55,104,243	25 09	10 55	23,170,575	31,933,668	.....
1867	2,456,140	11.4	28,000,000	1 97	55,160,000	22 45	10 55	25,912,277	29,247,723	.....
1868	2,483,478	11.5	28,560,000	1 20	34,272,000	13 80	10 55	26,200,692	8,071,308	.....
1869	2,607,142	11.2	28,200,000	76	22,192,000	8 51	10 55	27,505,348	.....	5,313,348
1870	2,259,583	12	27,115,000	94	25,488,100	11 28	10 55	23,838,600	1,649,500	.....
1871	2,050,081	12.3	25,216,000	1 18	29,754,880	14 51	10 55	21,628,354	8,126,526	.....
1872	2,042,231	12.1	24,711,000	1 23	30,394,530	14 88	10 55	21,545,537	8,848,993	.....
1873	2,104,963	13.5	28,417,000	1 10	31,258,700	14 84	10 55	22,207,360	9,051,340	.....
1874	2,619,304	11.5	30,122,000	86	25,904,920	9 88	10 55	37,633,657	.....	1,728,737
1875	2,600,000	10.5	27,300,000	91	24,843,000	9 55	10 55	27,430,000	.....	2,587,000
1876	2,520,430	9.3	23,440,000	93	21,799,200	8 64	10 55	26,590,536	.....	4,791,336
1877	1,977,745	16.4	32,490,556	1 15	38,002,082	19 22	10 55	20,865,210	17,136,872	.....
1878	2,324,755	14.6	33,883,398	80	27,059,460	11 64	10 55	24,526,165	2,533,295	.....
1879	2,440,809	18¾	45,417,661	87	39,930,639	16 36	10 55	25,750,535	14,180,104	.....
1880	3,256,350	17½	56,508,309	82	46,497,160	14 27	10 55	34,854,550	11,642,610	.....

*Estimated same as reported for 1880.

CONSUMPTION.

Estimating the annual amount of wheat required for seed and consumption at five bushels per capita, the State has a surplus of the 1880 wheat crop for shipment, of 41,091,229 bushels.

CONDITION.

The prospects of the growing crop are encouraging for an average in thirty counties; five per cent. more than an average in ten counties; ten per cent. more than an average in three counties; twenty per cent. more than an average in one county, and twenty-five per cent. more in one county. In seventeen counties the condition is five per cent. below an average; in thirteen counties ten per cent. below; in eleven counties, fifteen per cent. below, with only fifteen counties below twenty per cent. of an average.

The following table shows that the growing of winter wheat in the northern counties of the State has been profitable, as is evidenced by the increasing acreage each succeeding year, and which has more than doubled within the past year:

ACREAGE WINTER WHEAT IN NORTHERN COUNTIES.

Counties.	Winter wheat 1876.	Winter wheat 1877.	Winter wheat 1878.	Winter wheat 1879.	Winter wheat 1880.	Winter wheat 1881.
Boone	599	599	658	391	655	[illegible]
Bureau						[illegible]
Carroll	2,498	2,498	3,372	3,294	6,175	[illegible]
Cass	13,490	14,839	16,322	14,132	19,882	[illegible]
Champaign	5,358	6,697	9,040	11,181	17,378	[illegible]
Cook				60	63	[illegible]
DeKalb				125	225	[illegible]
DeWitt	1,541	1,541	1,386	2,653	9,665	[illegible]
DuPage				207	238	[illegible]
Ford	164	164	213	239	335	[illegible]
Fulton	16,396	16,397	17,215	17,215	28,405	[illegible]
Grundy				92	97	[illegible]
Hancock	9,781	9,291	10,220	21,468	31,970	[illegible]
Henderson	3,453	3,453	3,625	4,443	5,998	[illegible]
Henry				303	621	[illegible]
Iroquois	984	984	1,986	2,030	4,186	[illegible]
JoDaviess	3,525	2,467	2,861	1,908	6,364	[illegible]
Kane	730	730	730	51	43	[illegible]
Kankakee				376	1,128	[illegible]
Knox	3,749	2,249	2,698	2,255	3,968	[illegible]
Lake	647	647	647	76	125	[illegible]
LaSalle	2,974	2,974	2,974	430	659	[illegible]
Lee						[illegible]
Livingston				490	651	[illegible]
Logan	14,369	14,369	11,495	6,439	18,542	[illegible]
Marshall	360	396	396			[illegible]
Mason	7,313	7,313	7,898	7,898	9,748	[illegible]
McDonough	3,471	3,471	3,297	3,297	4,154	[illegible]
McHenry	1,535	1,535	1,535	1,535	3,289	[illegible]
McLean	5,974	5,974	6,451	3,790	6,890	[illegible]
Menard	3,305	3,305	6,114	8,967	19,157	[illegible]
Mercer	2,247	2,808	2,808	1,215	1,737	[illegible]
Ogle	3,839	3,839	4,299	2,031	3,368	[illegible]
Peoria	3,526	2,645	2,909	3,665	4,352	[illegible]
Piatt	2,217	2,217	2,106	4,211	5,895	[illegible]
Putnam	224	224	224	301	344	[illegible]
Rock Island	270	270	270	386	1,077	[illegible]
Schuyler	18,398	19,254	22,142	20,766	34,777	[illegible]
Stark				164	206	[illegible]
Stephenson	5,313	5,313	7,544	4,401	5,668	[illegible]
Tazewell	8,235	7,412	8,153	10,729	15,320	[illegible]
Vermilion	12,202	18,303	19,585	20,973	55,719	[illegible]
Warren	2,500	2,500	2,500	847	1,553	[illegible]
Whiteside				463	694	[illegible]
Will				323	375	[illegible]
Winnebago	1,667	1,667	1,750	859	1,655	[illegible]
Woodford	465	232	116	2,090	2,947	[illegible]
Total	163,259	168,576	185,539	188,689	335,717	[illegible]

SPRING VS. WINTER WHEAT.

The average yield per acre of spring and winter wheat for the last four years with the price per bushel and the value per acre is given in the following table.

The acreage of spring wheat in the State for the period named was 248,449 acres in 1877; 291,912 acres in 1878; 303,736 acres in 1879; 286,264 acres in 1880, a total of 1,130,361 acres of spring wheat. The same average yield per acre and price obtained per bushel for winter wheat would have made during the past four years a difference in favor of the producers of $7,084,399.81, or $6.26 per acre. The average yield per acre, average price per bushel and value per acre of spring and winter wheat the past four years are given in the following table:

TABLE.

	1877.			1878.			1879.			1880.		
	Average yield per acre—bu.	Price per bu. at harvest...	Value per acre	Average yield per acre—bu.	Price per bu. at harvest...	Value per acre	Average yield per acre—bu.	Price per bu. at harvest...	Value per acre	Average yield per acre—bu.	Price per bu. at harvest...	Value per acre
Winter wheat.....	17	$1 15	$16 55	14¾	82	$12 09	19⅔	88¾	$17 45	18	82	$14 76
Spring wheat.....	12	1 00	12 00	13¼	82	10 86	11	78 1/10	8 59	9½	76	7 22
Favor winter wheat.	5	15	7 55	1½	.....	1 23	8⅔	10	8 86	8½	6	7 54

WINTER RYE.

The last seeding of winter rye, of 138,802 acres, is less than that of any year since 1874.

The profits attending wheat culture have had the effect to decrease the area of rye, which is grown principally for winter and early spring pasture.

CONDITION.

Forty-seven counties out of the eighty counties reporting the crop, give the condition as up to an average; in one county the condition is five per cent. above an average; in six counties ten per cent above an average. The condition is five per cent. below an average in fourteen counties; ten per cent. below in nine counties; fifteen per cent. below in four counties; twenty per cent. below in three counties, and twenty-five per cent. below in three counties.

IRISH POTATOES.

During the past twenty-one years this crop has returned to the producer each year a handsome profit, and, excepting hay, is the only crop grown in the State that has not proved a failure during the period named.

The acreage of the last crop, 93,387, exceeds that of either of the preceding two years.

The following table, excepting the last four years, was compiled from the reports of the National Department of Agriculture:

IRISH POTATOES.

Year.	Number of acres...	Average yield per acre—bushels...	Bushels produced	Price per bushel...	Total value.....	Value per acre.....	*Cost of production per acre.....	Total cost of production.....	Profit.....	Loss.....
1860	69,255	80	5,540,390	31	$1,717,520	$24 80	$20 55	$1,423,190	$294,330	.....
1861	69,255	80	5,540,390	29	1,606,713	23 19	20 55	1,423,190	183,523	.....
1862	64,444	100	6,444,404	40	2,577,762	40 00	20 55	1,324,324	1,253,438	.....
1863	73,650	70	5,155,523	74	3,815,087	51 80	20 55	1,513,507	2,301,580	.....
1864	55,521	81½	4,511,083	$1 15	5,187,745	93 43	20 55	1,140,956	4,046,789	.....
1865	50,124	117	5,864,408	47¼	2,770,933	55 27	20 55	1,030,048	1,740,885	.....
1866	58,983	86½	5,102,035	64	3,265,302	55 36	20 55	1,212,100	2,053,202	.....
1867	60,710	60½	3,673,000	1 20	4,407,600	72 60	20 55	1,247,590	3,160,010	.....
1868	53,521	71	3,800,000	81	3,078,000	57 51	20 55	1,099,856	1,978,144	.....
1869	72,815	103	7,500,000	41	3,075,000	42 23	20 55	1,496,348	1,578,652	.....
1870	104,037	81	8,427,000	64	5,393,280	51 84	20 55	2,137,960	3,255,320	.....
1871	117,409	61	7,162,000	85	6,087,700	51 94	20 55	2,412,755	3,674,945	.....
1872	128,906	75	9,668,000	46	4,447,280	34 50	20 55	2,649,018	1,798,262	.....
1873	137,750	40	5,510,000	1 12	6,171,200	44 80	20 55	2,830,762	3,340,438	.....
1874	135,236	55	7,438,000	83	6,173,540	45 65	20 55	2,779,100	3,394,440	.....
1875	118,750	128	15,200,000	32	4,864,000	40 96	20 55	2,440,312	2,423,688	.....
1876	126,000	75	9,450,000	61	5,764,500	45 75	20 55	2,589,300	3,175,200	.....
1877	95,717	71	6,795,349	45	3,057,907	32 95	20 55	1,966,984	1,090,923	.....
1878	81,460	63	5,095,477	47	2,394,874	29 61	20 55	1,674,003	720,871	.....
1879	90,351	78	7,125,932	50	3,506,788	39 00	20 55	1,856,713	1,650,075	.....
1880	93,387	69	6,470,811	56	3,689,348	38 64	20 55	1,992,702	1,696,646	.....

*Estimated same as reported for 1880.

The Irish potato crop since 1876 has returned the producers a net profit of $44,811,361, or one-third as much as the wheat crop of the State for the same period.

When it is considered that the acreage of Irish potatoes is about one-third that of wheat, it will be seen that the profits are largely in favor of potatoes.

PRINCIPAL CROPS.

The following table gives the extent of the leading crops grown in the State during the past four years, and shows that the 1880 corn crop is less than that of 1877, 1878 and 1879.

The last hay crop exceeds that of 1879, and is less than the years 1877 and 1878.

The winter wheat crop of 1880 is the largest on record.

The late crop of spring wheat is less than that of the three preceding years.

The oat crop, excepting the year 1877, is the largest produced during the last four years.

There was a larger crop of Irish potatoes grown in 1877 and 1879 than the past season.

The 1880 crop of flax seed largely exceeds that of the preceding two years.

The number of gallons of sorghum syrup manufactured in 1880 is larger than in 1878 or 1879.

Excepting 1878, there were more hogs marketed in 1880 than any year since 1874.

There were more fat cattle marketed in 1880 than in previous years on record, excepting 1873, 1874 and 1879.

The number of fat sheep marketed the past season is the largest since 1874.

YIELD.

Article.	1877.	1878.	1879.	1880.
Corn, bushels	269,889,742	260,560,810	305,913,377	250,[illegible]
Hay, tons	4,044,969	4,255,471	2,578,736	3,[illegible]
Winter wheat, bushels	29,510,032	30,018,147	42,041,252	53,[illegible]
Spring wheat, bushels	2,980,524	3,870,251	3,376,409	2,[illegible]
Oats, bushels	67,145,983	62,096,388	54,664,569	62,[illegible]
Irish potatoes, bushels	6,795,349	5,095,477	7,125,932	6,[illegible]
Flax seed, bushels	.....	957,762	990,447	1,[illegible]
Sorghum, gallons syrup	.....	1,141,127	1,524,705	1,[illegible]
Hog product, number marketed	2,115,804	2,345,391	1,984,194	2,[illegible]
Fat cattle, number marketed	350,186	355,020	409,962	[illegible]
Fat sheep, number marketed	155,421	155,151	174,448	[illegible]

VALUE FARM CROPS.

The value of the leading crops grown in the State the past four years is given in the following table, and shows that the crops of 1880 largely exceed those of the preceding three years in value.

Exceeding the years 1879 and 1864, the return from the 1880 corn crop exceeds any year on record.

The value of the last hay crop has not been exceeded the past four years.

The winter wheat crop of 1880 brought the farmer more money than any previous crop, excepting 1864, 1866 and 1867, when the price per bushel was $1.55, $1.93 and $1.97, respectively.

There has been a steady decrease of late years in the value of the spring wheat crop of the State.

The value of the oat crop of 1880 exceeds that of the past two years.

Orchards have made a larger return the past season than for years.

The value of the last potato crop exceeds that of any crop since 1876; and the same is true concerning flax seed and sorghum.

The value of hogs and beef cattle marketed the past season exceeds that of the two preceding years, and the value of fat sheep sold in 1880 is larger than any season since 1876.

The value of dairy and other products of the State for 1880, not included in the table, would increase the aggregate returns of the farm to about $300,000,000.

VALUE.

Article.	1877.	1878.	1879.	1880.
Corn	$77,562,879	$56,035,848	$97,483,052	$[illegible]
Hay	21,971,968	19,994,341	16,428,012	23,[illegible]
Winter wheat	34,960,824	23,870,257	37,266,757	44,[illegible]
Spring wheat	3,041,258	3,189,203	2,668,882	2,[illegible]
Oats	16,269,647	12,451,889	12,059,162	12,[illegible]
Pasture	14,764,112	12,324,647	12,319,620	14,[illegible]
Orchard fruits	3,589,672	4,181,662	2,497,687	8,[illegible]
Irish potatoes	3,057,907	2,394,874	3,506,788	3,[illegible]
Flax seed	.....	.....	1,296,753	1,[illegible]
Sorghum	.....	.....	579,157	[illegible]
Hog product	22,738,881	16,724,384	16,640,061	22,[illegible]
Fat cattle	17,115,340	14,207,900	16,751,450	17,[illegible]
Fat sheep	615,467	613,156	513,384	[illegible]
Total	$215,687,355	$165,988,161	$220,006,365	$234,131,[illegible]

ACRES IN CULTIVATION.

There is but little change in the area of the leading crops grown in the State during the past six years. The wheat acreage has been increased somewhat of late, at the expense of corn. The extensive system of drainage being carried out in various parts of the State, of late years, has increased the cultivated area, and will soon make a showing in the extent of the acreage of the various crops.

The incomplete reports of the acreage of crops grown in the State, by assessors, as returned in May last, show that 8,777,006 acres were not included, a fraction over 25 per cent. of the total area of the State.

In the last returns a fraction over 21 per cent. of the area reported was occupied by corn, and over 7 per cent. of the acreage was devoted to winter wheat, and presuming the same ratio to apply to the area (8,777,006 acres) not included in the returns of assessors, it would increase the corn area of the State for 1879 to 9,435,323 acres, and the wheat area for the same year to 3,055,199 acres.

The same average yield per acre, as reported on the area returned, on the estimated corn and wheat area not included, would make the corn crop 358,542,264 bushels, an increase of 52,628,887 bushels, and make the wheat crop for 1879, 57,282,971 bushels, an increase of 11,865,310 bushels more than named in the report for 1879.

Article.	1875.	1876.	1877.	1878.	1879.	1880.
Corn	8,187,914	8,815,791	7,627,735	8,672,088	7,918,881	7,574,545
Pastures	4,219,347	4,289,918	3,760,071	3,983,459	4,193,884	4,257,054
Winter & spring wheat	2,004,275	1,938,527	2,069,563	2,324,755	2,435,072	3,256,350
Meadows	2,293,333	2,475,782	2,302,888	2,368,854	2,161,760	2,259,857
Oats	758,694	1,660,778	1,456,644	1,568,120	1,631,139	1,749,391
Orchards	311,555	342,682	294,684	412,140	290,646	306,096
Flax	.....	.....	89,304	96,179	110,016	171,985
Rye	157,572	161,250	231,972	252,768	235,073	149,742
Irish potatoes	118,750	126,000	95,717	81,460	90,351	93,387
Barley	113,281	124,293	44,982	29,301	25,494	39,313
Sorghum	.....	.....	19,335	14,638	14,949	17,716

PRICES OF FARM PRODUCTS, DEC. 20.

There has been no great fluctuation in prices of the products of the farm during the past five years, as will be seen by the following table, which gives prices in first hands on December 20th of the principal crops for the years named. Corn is higher this year than in any previous season included, and spring wheat, with the exception of 1878, is less than it has been the past five years. Rye and barley are higher than since 1875, and excepting 1878, the same may be said of buckwheat. Potatoes are higher than the four preceding years excepting 1876, and in the past five years hay has not brought as much per ton excepting last year. Beef cattle sell for more than they have in the past five years, and excepting 1877 the same is true of fat hogs. Fat sheep are lower than they have been in five years with the exception of 1879.

Article.	1876.	1877.	1878.	1879.	1880.
Corn, per bushel	$ 30	$ 30	$ 22	$ 32	$ 33
Winter wheat, per bushel	1 01	1 19	79	1 21	93
Spring wheat, per bushel	92	95	68	1 06	83
Oats, per bushel	30	23	17	29	29
Rye, per bushel	56	52	41	66	72
Barley, per bushel	53	47	56	68	70
Buckwheat, per bushel	.....	73	1 33	76	77
Potatoes, per bushel	58	45	47	50	56
Winter apples, per bushel	44	80	65	75	56
Hay, per ton	6 25	6 35	4 33	10 00	9 30
Beef cattle, gross per cwt	3 47	3 37	2 95	3 50	3 75
Fat hogs, gross per cwt	4 09	4 23	2 80	3 30	4 13
Fat sheep, gross per cwt	4 50	4 40	3 80	2 98	3 40

FARM DRAINAGE.

It is estimated that at least ten thousand miles of tile are laid each year in this State, and as the results of drainage become generally known, the interest in this much needed improvement to a majority of the prairie and bottom lands will increase to such an extent that the hundreds of tile factories now in the State will not be able to supply one-half the demand. The unanimous opinion of all who have had any experience in tile drainage is most favorable, and as the results are realized the enthusiasm increases to such an extent that the supply of tile and the available means for making these improvements are the only serious matters that interfere with the general determination of Illinois farmers to make themselves in a great measure independent of the damages frequently sustained by wet seasons. Notwithstanding the drouth which prevailed during the growing season in some parts of the State, the work of tile drainage has been prosecuted the past season with unusual energy.

IMPROVED STOCK.

This State ranks second to none in point of number and quality of the various breeds of improved stock. The interest in raising the more profitable breeds is quite general, and the sharp western competition has necessitated the breeding of the best beef and dairy breeds of cattle and other breeds of meat animals noted for early maturity and superior quality. The breeding establishments in the State are not approached in extent and quality by any on either continent, and the superior quality of cattle fed in Illinois is recognized in the leading foreign markets. The largest importers of the improved breeds of horses and cattle in America reside in this State. The commendable efforts of the stock breeders and importers of the State have been properly recognized in the liberal patronage received from farmers and breeders residing in nearly every State in the Union.

PROFITS.

The profits to the producer on the crops have not depended entirely on the large average yield per acre of the various crops, as the price obtained per bushel or pound on a medium crop has frequently netted the farmer the most money, viz: the 1868 corn crop of 109,091,000 bushels, at 68 cents per bushel, was worth to the producer $74,281,880, or $18,246,038 more than the very large crop of 1878 of 250,560,810 bushels, which, at 22 cents per bushel, returned the farmer only $56,035,842.

The 1866 wheat crop of the State amounted to 28,551,421 bushels, about one-half as many bushels as the crop of 1880 of 56,508,309 bushels; the 1866 crop, at $1.93 per bushel, made the wheat crop worth to the producer $55,104,243; the latter, at 82 cents per bushel, made the 1880 crop worth, in first hands, only $46,497,160, or $8,707,053 less than half the same number of bushels brought in 1866. The net profit to the farmers on the 1866 wheat crop was $31,933,668.06, or nearly three times as much as in 1880, when the wheat crop on nearly a million more acres only returned the producer a profit of $11,642,610.

The outside demand and charges for transportation on the crops largely influence the balances on the farmer's ledger, and as the producer and legitimate dealer are educated as to the extent of foreign demand and the supply, the speculator in agricultural products will have to seek other fields for profitable operation.

The widely extended markets of the United States give much encouragement for an increased future demand for surplus crops at renumerative prices, and a good crop in one or more of the countries purchasing American grain is not likely to make any material difference in prices.

The export of grain in 1880 from the United States, with flour and meal in bushels, was 275,549,638 bushels, valued at $263,295,537, an increase in value of $24,093,468 over that of the previous year.

The following table includes countries receiving from the single port of New York 20,000 or more bushels of grain during the past year:

Countries.	Wheat, bushels.	Corn, bushels.	Rye, bushels.
Russia, Baltic	.....	199,405	.....
Sweden and Norway	48,711	871,766	55,823
Denmark	516,821	3,395,864	.....
Netherlands	3,033,557	1,587,790	620,794
Belgium	6,303,471	1,065,153	397,062
Germany	1,960,313	7,598,500	787,765
England	20,778,262	15,295,787	17,469
Scotland	2,962,781	2,566,745	31,435
Ireland	11,492,311	16,184,356	141,332
Gibraltar	19,665	270,712	.....
British West Indies	.....	276,172	.....
France	12,369,800	1,968,606	174,600
Spain	344,973	1,687,414	8,993
Portugal	1,745,261	120,096	.....
Cuba	.....	301,246	.....
Italy	92,568	1,806,568	.....
Venezuela	.....	123,139	.....
Brazil	18,089	.....	.....
Uruguay	30,215	.....	.....
Argentine Republic	95,069	.....	.....

PROFITS PER ACRE.

The following table shows the profits per acre on the leading crops grown in the State since 1860 after deducting the various items of expense for cultivation. The crops named in the table rank as follows in the average amount of profit realized per acre on the entire crop of the State the last twenty-one years, viz: Irish potatoes, $25.72; barley, $6 16; hay $5 70; wheat, $3.26; corn, $1.16; rye, $0.28, and oats at a loss of six cents per acre.

The soil of the State is noted for its fertility, and the economy and ease with which it can be worked.

There are many good farmers in the State who obtained the past season an average of 40 or more bushels of wheat per acre, and upwards of 75 bushels of corn per acre, but there are more indifferent farmers who pay little attention to their crops and fail to get even half what is usually obtained by good culture. This shiftless class of farmers reduce the State average yield of the various crops to such an extent as to seriously reflect upon the industry and skill of the Illinois farmer.

PROFITS.

Year.	Corn.	Wheat.	Hay.	Oats.	Rye.	Barley.	Irish. Potatoes.
1860	$2 24	-$0 95	$6 60	-$2 12	-$1 93	$0 71	$4 25
1861	-3 50	-2 53	6 60	-4 08	-4 36	-4 58	2 64
1862	-1 01	09	6 25	-4 60	-1 20	11 05	19 45
1863	3 14	2 04	9 90	4 04	2 04	10 26	31 25
1864	14 25	11 65	15 65	9 60	5 42	20 49	72 88
1865	-0 19	1 45	6 60	-1 00	-1 74	1 36	34 72
1866	3 08	14 54	6 27	1 81	2 52	6 45	34 81
1867	5 70	11 90	7 24	5 34	8 05	17 97	52 05
1868	4 20	3 25	6 65	3 04	5 26	24 53	36 96
1869	2 72	-2 04	8 34	2 62	-0 48	8 26	21 68
1870	1 82	73	5 32	-1 08	-0 46	1 85	31 29
1871	1 75	3 96	5 81	-0 14	-0 16	2 71	31 39
1872	-0 97	4 33	5 43	-2 45	-0 75	3 80	13 95
1873	-3 78	4 29	3 58	-1 09	-0 80	11 30	24 25
1874	-0 42	-0 67	5 23	-1 53	1 13	6 13	25 10
1875	1 16	-1 00	5 98	-0 16	26	7 37	20 41
1876	-2 75	-1 91	2 00	-4 20	-0 52	-1 70	25 20
1877	-1 82	8 67	2 64	1 05	-0 70	-1 75	12 40
1878	-4 04	1 09	1 09	-3 33	-5 03	-0 36	9 06
1879	1 66	5 81	25	-2 01	-1 33	-0 12	18 45
1880	1 06	3 72	2 40	-1 00	30	3 71	18 09
Average	$1 16	$3 26	$5 70	-0 06	0 28	$6 16	$25 72

In the foregoing table the minus sign (-) is used where the crop was grown at a loss.

ACREAGE, ETC., OF CORN AND WHEAT.

The following tables show the acreage, yield, value and exports of wheat and corn crops of the United States during the past ten years, with the per cent. of exports and amount required for home consumption, to amount raised:

WHEAT.

Year.	Acreage	Yield per acre—bushels	Total product—bushels	Price per bushel	Total value of product	Wheat and flour exported in fiscal year closing June 3, following—bushels	Per cent. exported	Per cent. home consumption
1871	19,943,893	11.5	230,722,400	$1 25.8	$290,411,820	38,995,755	16.9	83.1
1872	20,858,359	11.9	249,997,100	1 24	310,180,375	52,014,715	20.8	79.2
1873	22,171,676	12.0	281,580,285	1 15	323,817,322	91,510,398	32.5	67.5
1874	24,967,026	12.3	309,107,200	0 94.1	291,107,805	72,912,817	23.7	76.3
1875	26,381,512	11.0	292,136,000	1 00	294,580,990	74,750,682	25.5	74.5
1876	27,627,021	10.4	289,356,500	1 03.7	300,259,300	57,149,949	19.7	80.3
1877	26,277,546	13.9	364,194,146	1 08.2	394,695,779	92,141,626	25.3	74.7
1878	32,108,560	13.1	420,122,400	0 77.7	326,346,424	150,502,506	35.8	64.2
1879	32,545,899	13.7	448,756,118	1 10.8	497,008,803	180,304,000	40.1	59.9
1880	36,037,950	13.3	480,849,700	0 95.8	460,597,000	178,079,128	37.0	63.0

CORN.

Year.	Acreage	Yield per acre, bushels	Total product, bushels	Price per bush	Total value of product	Corn and corn meal exported in fiscal year ending June 30, bush	Per ct. exp'ted	Percent. home consumption
1871	34,091,137	29.1	991,898,000	$0 48.2	478,275,900	35,727,010	3.6	96.4
1872	35,526,836	30.7	1,092,719,000	39.8	435,149,290	40,154,274	3.6	96.4
1873	39,197,148	23.8	932,274,000	48	447,183,020	35,985,834	3.8	96.2
1874	41,036,918	20.7	850,148,500	64.7	550,043,080	30,025,026	3.5	96.5
1875	44,841,371	29.4	1,321,069,000	42	555,445,930	50,910,532	8.8	96.2
1876	49,033,364	26.1	1,283,827,000	37	475,491,210	72,652,611	5.6	94.4
1877	50,369,113	26.6	1,342,558,000	35.8	480,643,400	87,192,110	6.5	93.5
1878	51,585,000	26.9	1,388,218,750	31.8	441,153,405	87,884,892	6.3	93.7
1879	53,085,450	29.2	1,547,901,790	37.5	580,486,217	89,572,329	5.8	94.2
1880	52,695,231	29.2	1,537,535,000	40.1	617,485,100	99,191,035	6.4	93.6

IMPROVED METHODS.

The increased interest in drainage; the extensive demand for improved farm machinery; the numerous herds and flocks of fine stock that are to be found in nearly every county; the quality of cereals grown in the State, are some of the evidences of the better methods adopted by the farmers of Illinois, and this progressive and successful class will soon influence the average farmer to adopt the more profitable modes, or to move west where, with cheaper lands, he may without sharp competition manage to make both ends meet.

FAT CATTLE.

Year.	Number assessed	Estimat'd per cent. marketed	Number beef cattle marketed	Aver. gross weight per head	Total gross weight	Value per 100 lbs. gross	Value of beef cattle product
1856	1,169,855	20	239,971	†1,000	233,971,000	†$4 75	$11,113,[illegible]
1857	1,351,209	20	270,242	†1,000	270,242,000	†4 75	12,836,[illegible]
1858	1,422,249	20	284,450	†1,000	284,450,000	†4 75	13,541,[illegible]
1859	1,336,565	20	267,513	†1,000	267,513,000	†4 75	12,706,[illegible]
1860	1,425,978	20	285,106	†1,000	285,196,000	†5 00	14,259,[illegible]
1861	1,428,362	20	285,672	†1,000	285,672,000	†5 00	14,283,[illegible]
1862	1,603,949	20	320,790	†1,000	320,790,000	†5 00	16,039,[illegible]
1863	1,684,892	20	336,978	†1,000	326,978,000	†5 00	16,848,[illegible]
1864	1,370,783	20	374,157	†1,000	674,257,000	5 05	13,844,[illegible]
1865	1,568,280	20	213,566	†1,000	313,656,000	5 70	17,878,[illegible]
1866	1,435,769	20	287,154	†1,000	287,154,000	5 60	16,080,[illegible]
1867	1,486,381	20	297,276	†1,000	297,276,000	5 75	17,093,[illegible]
1868	1,520,963	20	304,193	1,085	340,049,405	5 75	18,977,[illegible]
1869	1,584,445	20	316,889	1,103	349,528,567	5 70	19,923,[illegible]
1870	1,578,015	20	315,603	1,110	350,319,330	5 85	20,493,[illegible]
1871	1,611,349	20	322,270	1,129	363,842,830	4 75	17,282,[illegible]
1872	1,684,029	20	336,806	1,137	382,948,422	4 85	18,572,[illegible]
1873	2,015,819	20	403,164	1,145	461,622,780	4 50	20,773,[illegible]
1874	2,042,327	20	408,465	1,152	470,551,689	4 85	22,821,[illegible]
1875	1,985,155	20	397,031	1,147	455,394,557	4 85	22,0[illegible]
1876	1,857,301	20	371,460	1,156	429,407,760	4 05	17,391,[illegible]
1877	1,750,931	20	350,186	†1,150	402,713,900	4 25	17,115,[illegible]
1878	1,775,401	20	355,020	1,160	411,823,200	3 45	14,207,[illegible]
1879	1,862,265	20	409,982	1,162	476,473,759	3 50	16,751,[illegible]
1880	1,999,788	20	399,955	1,167	467,019,031	3 65	17,0[illegible]

† Estimated.

The number of fat cattle marketed in 1880 is the largest on record with the exception of the years 1873, 1874 and 1879, and the average weight per head is a fraction over that of previous years, which taken into consideration with the fact that younger cattle are marketed than heretofore, proves conclusively that the work of State and county fairs the last quarter of a century in encouraging the breeding of meat animals, noted for superior quality of flesh and early maturity, is having the desired effect, and is not only adding millions of dollars to the revenue of our feeders annually, but enables this State to largely contribute to the home and foreign markets, meat of the best quality.

The average value of beef per 100 pounds gross the past year slightly exceeds that of the two preceding years. The prices the past three years for beef cattle are the lowest on record, notwithstanding the increased foreign demand, and this decrease is by some authorities accounted for by the improved quality and large supply of western cattle, which has had the effect of depreciating the price of all except the best grades of cattle, which have brought unusually high prices, and the demand for this extra class of cattle is not likely to be supplied for years. The value of the beef cattle marketed in 1880 exceeds that of the two previous years, as will be seen by the foregoing table, which gives other data concerning the extent and value of fat cattle during the past twenty-five years.

FAT HOGS.

The number of hogs marketed in 1880 exceeds that of the previous year by over 100,000 head (109,293). The net weight per head of hogs the past year is less than heretofore. The price per 100 pounds net was $4.99, and has not been exceeded since 1876. The value of the hog crop is $22,147,461, and largely exceeds the value of either of the two preceding crops.

The following table gives the number of hogs assessed, marketed, and the value of the hog crop for the past 25 years. It will be seen in the table that the number assessed in 1880, while larger than that of the preceding year, is less than for the years 1872, 1873, 1874 and 1879.

ILLINOIS HOG CROP.

Year.	Number assessed	Estimated per cent. marketed	Number of fat hogs marketed	Average net weight per head	Total net weight	Value per 100 lbs. net	Value of hog crop
1856	1,596,903	70	1,117,832	*210	234,744,720	$5 94	$13,493,836
1857	1,893,585	70	1,325,509	*210	278,356,890	4 86	13,528,145
1858	1,908,603	70	1,336,022	*210	280,564,620	6 28	17,619,458
1859	1,725,328	70	1,207,730	*210	253,623,300	5 91	14,989,137
186	1,530,256	70	1,071,179	*210	224,947,590	5 67	12,754,528
1861	2,196,581	70	1,537,607	*210	322,897,470	3 03	9,783,793
1862	2,601,395	70	1,820,976	*210	382,404,960	4 20	16,061,008
1863	2,506,138	70	1,754,296	*210	368,402,160	6 70	24,682,944
1864	2,044,844	70	1,431,391	*210	300,592,110	14 32	43,044,790
1865	1,743,005	70	1,220,103	231	281,843,793	11 67	32,891,170
1866	2,007,500	70	1,405,250	232	326,018,000	7 22	23,538,500
1867	2,616,814	70	1,831,770	201	368,185,770	7 95	29,270,778
1868	2,300,150	70	1,610,105	206	331,681,630	10 22	33,897,862
1869	2,056,304	70	1,429,413	205	295,079,665	11 53	34,022,685
1870	2,220,651	70	1,554,456	230	357,524,880	6 58	23,525,137
1871	2,938,749	70	2,057,124	227	466,967,148	5 15	24,048,808
1872	3,292,165	70	2,304,515	232	534,647,480	4 66	24,914,572
1873	3,560,192	70	2,492,134	214	633,316,676	5 43	28,959,095
1874	3,452,213	70	2,416,549	209	505,058,741	8 33	42,071,393
1875	2,809,969	70	1,966,978	217	426,834,226	8 82	37,646,778
1876	2,665,935	70	1,866,154	215	401,223,110	7 18	28,807,819
1877†	2,961,366	70	2,115,804	*215	455,087,574	4 99	22,738,881
1878†	3,335,550	69	2,345,391	*210	492,532,110	3 46	16,724,384
1879†	2,799,051	70	1,984,194	*210	416,680,740	3 99	16,640,061
1880†	3,133,557	70	2,193,487	*202	443,084,374	4 99	22,137,461

*Estimated. †Crop Reports Illinois Agricultural Department.

HOG CHOLERA.

The loss to the farmers of the State, resulting from so-called hog cholera the last five years, has averaged nearly a million and a quarter of dollars ($1,224,759). The number of hogs reported as having died the past season from disease is 227,259 head, an increase of 44,682 head over 1879. The value of hogs lost in 1880 is $937,293, or $348,806 more than last season. The amount of loss the farmers have sustained during the past five years from so-called hog cholera is $6,123,796, a sum that would pay off the mortgages on more than a thousand farms and add largely to the material prosperity of the State.

A competent State veterinary inspector could be of great value to the farmers of the State in the enforcement of practical sanitary laws providing safeguards against the spreading of this and other diseases of farm animals that are annually the cause of loss of millions of dollars.

The following table gives the number and amount of loss resulting from so-called hog cholera during the past five years:

Year.	No. of Hogs assessed.	Per cent. died.	No. died.	Average weight.	Value.
1876	2,665,935	17†	452,208	103	$1,576,612
1877	2,961,366	12†	358,844	104	1,583,415
1878	3,334,920	14†	474,758	108	1,438,589
1879	2,799,041	6†	182,577	98	588,467
1880	3,133,557	7	227,259	104	937,238
Average	2,978,965	12	339,129	103	$1,224,759

†Estimated.

FAT SHEEP.

The last assessment shows the largest number of sheep in the State since 1874. There were 192,939 head of fat sheep marketed in 1880, and this number has not been reached during the past six years. The price obtained the past year per hundred pounds gross, was $3.40, and excepting 1858, 1861 and 1879, is the lowest on record. The value of fat sheep marketed the past year, exceeds that of the three preceding years. The loss of over twenty-five thousand head of sheep per year has had much to do with the limited attention given to this profitable industry.

Year.	Number assessed.	Estimated per cent. marketed.	Number fat sheep marketed.	Average gross weight per head.	Total gross weight.	Value per 100 lbs. gross.	Value fat sheep product.
1856	786,433	20	157,286	†90	14,155,740	†$3 50	$495,459
1857	760,602	20	152,120	†90	13,690,300	†3 70	506,569
1858	760,793	20	152,158	90	13,694,220	2 30	314,957
1859	647,334	20	129,467	91	11,791,497	3 80	447,694
1860	584,430	20	116,886	95	11,104,170	3 39	366,440
1861	731,879	20	146,276	104	15,212,704	3 30	502,239
1862	913,024	20	182,605	102	18,625,710	3 90	625,402
1863	1,206,625	20	241,325	110	26,575,750	4 95	1,214,612
1864	1,606,144	20	321,229	111	35,656,319	5 91	2,107,293
1865	2,165,972	20	433,194	†90	38,987,460	5 65	3,202,788
1866	2,415,980	20	488,016	104	50,233,664	4 35	2,185,168
1867	2,599,998	20	519,999	98	50,959,902	†4 25	2,195,796
1868	2,336,716	20	467,343	†90	42,060,870	3 80	1,598,314
1869	1,957,513	20	391,513	85	33,278,605	3 85	1,281,236
1870	1,434,236	20	286,847	†90	25,816,230	4 19	1,058,464
1871	1,073,497	20	214,699	†90	19,322,910	4 40	850,207
1872	1,010,475	20	202,095	†90	17,188,550	4 15	754,835
1873	1,092,104	20	218,421	†90	19,657,890	4 75	933,759
1874	1,036,831	20	207,366	†90	18,962,944	4 40	821,168
1875	928,056	20	185,611	†90	16,704,990	4 90	818,545
1876	824,854	20	164,971	†90	14,847,390	4 50	668,133
1877	777,105	20	155,421	90	13,987,890	4 40	615,467
1878	775,757	20	155,151	104	16,135,704	3 80	613,156
1879	847,101	20	174,448	98	17,170,381	2 98	513,834
1880	964,696	20	192,939	99	19,198,595	3 40	652,465

† Estimated.

SHEEP KILLED BY DOGS.

It will be seen from the following table, that the loss of sheep by dogs is about three per cent. annually. This loss alone would not interfere with the rapid development of this profitable branch of stock raising were it not for the uncertainty and anxiety that attends the business, and the difficulty in obtaining remuneration for the frequent inroads made upon flocks by worthless curs, that proportionately increase in numbers more rapidly than sheep. There are few lines of business that could be carried on successfully with a loss

of three per cent. annually, yet the number of sheep, as returned by assessors, has increased the last four years. The amount of the loss from this cause has steadily increased of late years, and was over seventy-five thousand dollars in 1880.

Year.	Number assessed.	Per cent. killed.	Number killed.	Amount of loss.
1876	824,854	3*	24,725	$30,578
1877	777,105	3*	26,753	63,752
1878	775,757	3	20,720	43,885
1879	846,181	3*	27,338	65,384
1880	969,696	3	27,159	76,050

* Fraction over.

VALUE OF LIVE STOCK.

The following table gives the assessed value of live stock in the State during the past twenty-five years.

The real value of horses, cattle, mules and asses, sheep and hogs, in May, 1880, is as follows: Horses, $48,479,968; cattle, $39,790,968; mules and asses, $6,932,338; sheep, $2,593,644; hogs, $9,600,728, a total of $107,287,646.

The valuation of stock by the State Board of Equalization the past year is on a 50 per cent. valuation, and that value the above figures has increased 50 per cent. to the real value.

ASSESSED VALUE LIVE STOCK.

Year.	Horses.	Cattle.	Mules & Asses	Sheep.	Hogs.
1856	$23,118,584	$15,572,065	$1,437,186	940,034	$3,375,247
1857	25,434,171	16,171,830	1,969,284	881,126	4,032,588
1858	23,680,592	44,442,821	1,867,371	806,455	3,482,116
1859	21,404,351	12,371,600	1,740,307	682,082	2,495,042
1860	22,359,202	12,468,537	1,848,291	695,035	2,745,915
1861	21,064,138	11,494,803	1,708,530	747,437	4,032,874
1862	19,893,415	11,032,662	1,400,900	982,285	3,198,807
1863	21,714,620	12,699,732	1,501,634	1,910,654	3,294,729
1864	25,148,408	13,799,418	1,722,809	2,876,696	2,799,158
1865	28,055,559	14,285,863	2,267,194	3,955,102	3,359,621
1866	27,364,215	13,279,620	2,523,772	3,283,595	4,474,354
1867	32,625,865	17,179,165	3,132,537	3,512,590	5,230,731
1868	29,025,915	15,810,830	3,240,789	2,337,896	3,692,869
1869	27,702,942	15,497,350	3,217,789	1,612,472	3,929,832
1870	25,081,419	14,555,331	2,886,677	994,610	4,114,108
1871	23,986,565	14,694,415	2,822,148	732,254	4,613,529
1872	23,450,717	14,778,925	2,714,571	1,024,468	4,060,736
1873	48,855,005	35,776,899	5,823,662	2,135,593	11,279,720
1874	42,549,570	31,928,374	5,419,724	1,576,090	8,972,402
1875	37,813,706	28,323,950	5,346,698	1,399,397	8,157,128
1876	34,332,380	24,827,932	5,016,723	1,185,736	8,934,673
1877	31,054,628	21,677,643	4,692,969	1,008,054	7,580,920
1878	26,817,560	19,861,633	4,077,147	893,036	4,991,285
1879	23,624,921	18,893,811	3,498,111	930,607	3,812,328
1880	24,239,984	19,895,484	3,461,169	1,246,822	4,800,364

AGRICULTURAL STATISTICS.

The great value of the crop statistics of this department mainly consists in their early and prompt appearance during the growing season, and immediately after harvest, when the information as to condition and yield is most needed to enable the producer and legitimate dealer to decide as to the supply and value of the crop.

The last official acreage of crops, as reported by assessors, is used as a basis for applying the estimate of crop correspondents as to the area and yield of the growing crops, as it is not to be expected that the estimates of correspondents will more than closely approximate the assessed return reported the year following.

The estimates of correspondents, with few exceptions, have been below the returns of assessors made the succeeding year, and, during the last four years, the reports, when compared with the assessment, have confirmed the superior judgment and careful observations made by correspondents, who are farmers of experience and standing, and largely interested in the accuracy of the returns, and, as a rule, are inclined to the side of conservatism.

NAMES AND POSTOFFICE ADDRESSES

OF

CROP CORRESPONDENTS,

DEPARTMENT OF AGRICULTURE.

FOR THE YEAR 1880.

ADAMS COUNTY:
T. Butterworth, Quincy..... 3
C. H. Rankin, Payson..... 4
A. R. Wallace, Camp Point..... 5
S. D. Lewis, Payson..... 5
G. W. Dean, Adams..... 5

ALEXANDER COUNTY:
James H. Metcalf, Cairo..... 4
J. E. McCrite, Elco..... 5
†J. I. Nowotny, Beech Ridge..... 2
Severe Marchildon, Thebes..... 5
John Miller, Commercial Point..... 2
**Wm. Minton, Hodges Park..... 1

BOND COUNTY:
John V. McFarland, Cottonwood Grove 5
John Riley, Mulberry Grove..... 4
C. A. Meyer, Greenville..... 4
Thomas W. Hynes, Pocahontas..... 4
S. H. Challes, Pocahontas..... 5

BOONE COUNTY:
Evi Sherman, Poplar Grove..... 5
George Reed, Belvidere..... 5
S. C. Fox, Garden Prairie..... 5
L. W. Lawrence, Belvidere..... 5
E. E. Moss, Belvidere..... 5

BROWN COUNTY:
Henry D. Ritter, Versailles..... 3
George J. Hersman, Hersman..... 4
T. J. Nolen, Mound Station..... 5
R. T. Bratten, White Oak Springs..... 4
James Warren, Ripley..... 4

BUREAU COUNTY:
L. D. Whiting, Tiskilwa..... 4
James F. Mallett, Milo..... 5
George W. Stone, Princeton..... 3
J. Y. Spangler, New Bedford..... 5
John L Hall, Wyanet..... 4

CALHOUN COUNTY:
A. Smith, Hardin..... 5
George W. Long, Belleview..... 3
William Love, Brussels..... 4
S. A. White, Monterey..... 1

CARROLL COUNTY:
C. W. Allison, Milledgeville..... 5
E. L. Byington, Lanark..... 1
G. N. Melendy, Thompson..... 2

CASS COUNTY:
Thomas J. Crum, Virginia..... 5
John M. Epler, Little Indian..... 2
John H. Goodell, Chandlerville..... 5
John Beggs, Ashland..... 5
J. K. Clark, Bluff Springs..... 3

CHAMPAIGN COUNTY:
James Batterman, Pesotum..... 5
J. M. Morse, Gifford..... 5
W. A. Conkey, Homer..... 5
J. C. Ware, Mahomet..... 4
J. M. Lewis, Urbana..... 4

CHRISTIAN COUNTY:
J. B. White, Morrisonville..... 5
A. B. Herdman, Morrisonville..... 2
John W. Hunter, Owaneco..... 5
O. S. Nash, Sharpsburg..... 3
J. Overholt, Assumption..... 5
**J. R. Hill, Edinburg..... 2

CLARK COUNTY:
James B. Shepley, Martinsville..... 4
F. B. Ennis, Dolson..... 5
R. R. Scott, Casey..... 5
Samuel Park, Marshall..... 5

CLAY COUNTY:
W. W. Bowler, Flora..... 5
John S. Symond, Xenia..... 4
Crawford Erwin, Louisville..... 5
Theron Gould, Bible Grove..... 5

CLINTON COUNTY:
W. H. Russell, Lost Creek..... 4
John Burton, Trenton..... 4
O. B. Nichols, Sr., Carlyle..... 5
B. Pullen, Centralia..... 5

OUNTY:
as O'Brien, Ashmore 3
Dore, Charleston 4
Threlkeld, Mattoon 4
iel Montgomery, Mattoon 1
. F. Corton, Mattoon 2

UNTY:
Dolton, Dolton's Station 4
an Powell, Palos 5
Wolcott, Chicago 2
ge Struckman, Elgin 5
Sweet, Glenwood 5

ID COUNTY:
am L. Henstiss, Robinson 5
ew Newlin, Hutsonville 5
ey Paull, Palestine 5
. Highsmith, Flat Rock 2
. Weger, Flat Rock 2

AND COUNTY:
w Park, Greenup 5
l Neal, Neoga 5
umgarder, Hazel Dell 5
y Spring, Hazel Dell 4

COUNTY:
Alden, Sycamore 5
Marsh, Sandwich 5
Greenwood, Waterman Station 5
Pritchard, Waterman Station 5
Cole, Kingston 5

COUNTY:
Robb, Waynesville 5
McDonald, Farmer City 5
Vandervort, Clinton 5
es W. Knox, Wapella 2
McCuddy, Clinton 3

COUNTY;
s H. Wilson, Tuscola 5
rwin, Tamargo 3
Woodsworth, Arcola 4
McCarthy, Arcola 5

COUNTY:
Bush, Downer's Grove 4
Stacy, Prospect Park 4
Ellsworth, Naperville 3
l Dunham, Wayne 4
Patrick, Lombard 4

OUNTY:
Pinnell, Kansas 3
Workman, Scott Land 5
Stubbs, Ferrell 3
Curtis, Paris 5
McCord, Paris 4

COUNTY:
Shelby, Maple Grove 5
Q. Orange, Albion 2
n Huffman, West Salem 4
awes, Albion 4
W. Skeavington, Albion 5

AM COUNTY:
Kidder, Moccasin 5
McDonald, Edgewood 5
Hayden, Elliotstown 4

COUNTY:
Lott, St. Elmo 5
son, Brownstown 4
llwock, St. Paul 4
Kennedy, Shabonier 5
Griffith, Brownstown 4

UNTY:
Bishop, Piper City 4
J. Simons, Paxton 2
s Ogelvie, Caberey 5
Sackett, Roberts 5
eFevre, Gibson City 4

FRANKLIN COUNTY:
Wm. Drummond, Benton 4
F. M. Phipps, Benton 4
C. C. Biggs, Cave 2
Isham Harrison, Mulkeytown 4
Thos. Neal, Ewing 5

FULTON COUNTY:
M. Rawalt, Canton 5
Alex. Bailey, Vermont 4
D. H. Gorham, Avon 4
John Prickett, Lewistown 5

GALLATIN COUNTY:
G. W. Moore, Equality 5
C. W. McGehee, Shawneetown 4
Martin Doherty, Waltonborough 5
A. K. McCabs, Shawneetown 3

GREENE COUNTY:
C. W. Brace, Kane 5
Alex. King, Athensville 4
Elon A. Eldred, Carrollton 4
S. G. Russell, Bluffdale 3
Jas. Rickart, Whitehall 5

GRUNDY COUNTY:
John Hurst, Minooka 4
Otis Baker, Morris 5
R. K. Slosson, Verona 5
Wm. Pierce, Verona 4
C. E. Parker, Gardner 4

HAMILTON COUNTY:
John H. Barker, Broughton 1
A. M. Sturman, Dahlgren 5
Adam Crouch, Belle City 5
**R. W. Jordan, Enfield 3

HANCOCK COUNTY:
A. C. Hammond, Warsaw 5
Emil E. J. Baxter, Nauvoo 4
B. Whitaker, Warsaw 5
W. W. Tull, Fruitland 4
W. S. Remick, Plymouth 4

HARDIN COUNTY:
James A. Lowry, Elizabethtown 5
John Mitchell, Cave-in-Rock 3
W. L. Stilly, Parkinson's Landing 3
T. A. McAmis, Elizabethtown 4
W. N. Warford, Sparks' Hill 5

HENDERSON COUNTY:
Samuel Hutchinson, Monmouth 4
Peter Groom, Raritan 5
John H. McDougall, Biggsville 5
Paul D. Salter, Kirkwood 5

HENRY COUNTY:
N. C. Howard, Geneseo 3
N. C. Gilbert, Geneseo 5
Joshua C. Edwards, Cambridge 5
John A. Widney, Woodhull 5
Wm. Mathias, Annawan 4

IROQUOIS COUNTY:
Robert Caldwell, Sheldon 2
K. Shankland, Hoopestown 3
A. C. Johnson, Woodland 4
Isaac Pilotte, Martinton 3

JACKSON COUNTY:
George C. Hanford, Makanda 5
George B. Corey, DeSoto 4
Hiram Swartz, Elkville 5
John A. Carter, Campbell Hill 5

JASPER COUNTY:
James Picquet, St. Marie 4
W. E. Barrett, Newton 5
R. G. Scott, Ingraham 2
A. Wilson, Montrose 4
Alfred Hammer, Rose Hill 4

JEFFERSON COUNTY:
John R. Moss, Mt. Vernon 4
John Wilbanks, Elk Prairie 5
L. E. Jones, Opdyke 3
George L. Whitlock, Dix 5
E. S Noleman, Irvington 5

JERSEY COUNTY:
Henry Ryan, Medora 4
James . Starr, Elsah 4
J. T. Curtis, Otterville 5
J. H. Belt, Fieldon 5
W. H. Fulkerson, Jerseyville 3

JODAVIESS COUNTY:
Henry Green, Elizabeth 4
E. M. Bouton, Galena 5
S. S. Brown, Galena 2
J. A. Hammond, Hanover 5
Joseph Moore, Plum River 4
R. A. Oliver, Hanover 3

JOHNSON COUNTY:
H. T. Williams, Buncombe 3
F. M. Jones, Vienna 4
J. F. Casper, New Burnside 4

KANE COUNTY:
Joseph Tefft, Elgin 5
J. P. Bartlett, Blackberry 5
H. Chapman, Sugar Grove 5
William Conant, Geneva 2
L. Baldwin, Hampshire 3

KANKAKEE COUNTY:
James Chatfield, Momence 3
Milo Barnard, Manteno 5
R. A. Lane, Kankakee City 5
B. N. McKinstry, Grant Park 4
I. C. Mosier, Wilmington 5

KENDALL COUNTY:
J. M. Gale, Bristol 5
John S. Seely, Oswego 5
John Hurst, Minooka 4
L. Scofield, Newark 5
Geo. M. Hollenbak, Millbrook 5

KNOX COUNTY:
John Sloan, Douglas 4
Isaac Hunter, Abingdon 5
G. A. Marshall, Abingdon 4
R. W. Miles, Gilson 5
A. A. Phelps, Wataga 3
C. G. Taylor, Galesburg 5

LAKE COUNTY:
*Elisha Gridley, Half-Day 4
Henry Hart, Hainesville 5
Arthur Cook, Wauconda 4
*John Pope, Wadsworth 5
G. S. Farmer, Libertyville 4
William Atteridge, Lake Forest 3

LASALLE COUNTY:
A. M. Ebersoll, Ottawa 5
Thomas J. Davis, Triumph 3
Elmer Baldwin, Farm Ridge 5
George A. True, Utica 5
George W. Armstrong, Seneca 5
W. H. H. Holdridge, Tonica 5

LAWRENCE COUNTY:
W. T. Buchanan, Bridgeport 5
James F. Jennings, Chauncy 5
D. S. Porter, Lawrenceville 5

LEE COUNTY:
Abijah Powers, Prairieville 4
James C. Lahman, Franklin Grove 5
Thomas Clayton, Nelson 4
Abram Brown, Dixon 5
C. F. Ingalls, Sublette 4

LIVINGSTON COUNTY:
Dan. R. Potter, Fairbury 4
L. R. Bancroft, Pontiac 4
S. T. K. Prime, Dwight 4
†Alex. McIntosh, Rooks' Creek 3
James H. Smith, Minonk 4

LOGAN COUNTY:
T. J. Corwin, Skelton 5
J. P. Hieronymous, Atlanta 5
Sorrell Doten, Mt. Pulaski 5
S. H. Hart, Hartsburg 4
W. C. Maul, Middletown 4

MACON COUNTY:
T. H. Barr, Argenta 5
H. W. Davis, Decatur 5
V. Barber, Decatur 4
G. Elliott, Harristown 4
D. P. Keller, Macon 4

MACOUPIN COUNTY:
J. H. Bauer, Bunker Hill 4
John P. Henderson, Virden 5
George W. Hilliard, Brighton 5
H. J. Loomis, Chesterfield 4
I. B. Vancil, Vancil's Point 5
Edwin H. Wilson, Shaw's Point 4

MADISON COUNTY:
V. P. Richmond, Moro 5
Irby Williams, Upper Alton 5
B. R. Hite, Collinsville 5
E. J. Jeffress, Marine 5
E. W. Mudge, Highland 5
John Balsiger, Highland 4

MARION COUNTY:
Urial Mills, Salem 5
J. W. Jennings, Walnut Hill 3
*Dale W. Carter, Hickory Hill 3
John D. Young, Kinmundy 4
R. M. McWham, Foxville 1

MARSHALL COUNTY:
Geo. F. Wightman, Lacon 4
Henry Reader, Henry 4
G. W. Zimmerman, Sparland 5
D. B. Wier, Lacon 3
Calvin Stowell, La Prairie Centre 3

MASON COUNTY:
D. W. Riner, Mason City 3
J. B. Conover, Kilbourne 3
H. C. McIntire, Havana 4
E. J. Bowser, Bishop's Station 1
J. M. Ruggles, Havana 5

MASSAC COUNTY:
J. I. Gray, New Columbia 5
J. M. Choat, Metropolis 5
A. Brady, Pellonia 4
J. C. Gebhart, Massac Creek 1
L. W. Copeland, Joppa 4

MCDONOUGH COUNTY:
James M. Devore, Bushnell 2
J. R. Lounes, Table Grove 4
Samuel Frost, Macomb 5
W. H. Green, Bardolph 4
John B. Isom, Blandinsville 2

MCHENRY COUNTY:
E. H. Seward, Marengo 3
James Crow, Crystal Lake 5
Sidney Disbrow, Alden 5
T. McD. Richards, Woodstock 5
Richard Wray, Richmond 4

MCLEAN COUNTY:
C. N. Vandervoort, Randolph 5
J. A. Ewins, Danvers 5
Nelson Jones, Towanda 4
Wm. H. Oglevee, Heyworth 5
Sylvester Peasley, Downs 3
Daniel McFarland, McLean 5
R. M. Guy, LeRoy 4

MENARD COUNTY:
W. W. Linn, Tallula..... 4
Thomas Kincaid, Athens..... 5
R. B. Godbey, Greenview..... 4
John F. Fulton, Petersburg..... 5
S. D. Masters, Petersburg..... 4

MERCER COUNTY:
Josiah Candor, Hamlet..... 5
D. H. Hayes, Aledo..... 3
Dan. W. Sedgwick, Suez..... 5
Wm. A. Griffin, New Windsor..... 5
Joseph U. David, New Windsor..... 4

MONROE COUNTY:
Louis Thorn, Harrisonville..... 5
L. Warnock, Columbia..... 4
George Frick, Hecker..... 4
Bennett James, Mitchie..... 4
J. Chewning, Renault..... 4

MONTGOMERY COUNTY:
E. W. Miller, Raymond..... 5
A. F. Weaver, Nokomis..... 5
J. B. Pocock, Nokomis..... 5
W. F. Hicks, Raymond..... 4
E. H. Donaldson, Nokomis..... 4

MORGAN COUNTY:
James C. Fairbank, Concord..... 5
S. S. DeWees, Alexander..... 5
John Gordon, Jacksonville..... 4
S. D. Masters, Murrayville..... 2
R. C. Curtiss, Waverly..... 5

MOULTRIE COUNTY:
B. R. Cole, Lovington..... 5
Wm. Kirkwood, Sullivan..... 5
G. W. Vaughn, Sullivan..... 4
F. M. Porter, Lovington..... 5
John Bowers, Williamsburg..... 4

OGLE COUNTY:
J. A. Atwood, Stillman Valley..... 5
J. L. Moore, Polo..... 3
A. D. Clark, Kyte River..... 4
W. B. Derrick, Baileyville..... 5
J. W. Knapp, Monroe Centre..... 2

PEORIA COUNTY:
G. C. Clark, Peoria..... 2
M. H. Snyder, Elmwood..... 5
H. Truitt, Chillicothe..... 3
Joseph Gallup, Chillicothe..... 5
**R. C. Davis, French Grove..... 3

PERRY COUNTY:
Alex. P. Baird, Four Mile..... 5
H. L. Burbank, DuQuoin..... 4
J. C. Kinzey, Tamaroa..... 4
James Ervin, Coulterville..... 4

PIATT COUNTY:
D. W. Smith, Farmer City..... 4
Ezra Marquis, Sr., Monticello..... 5
John W. C. Gray, Mackville..... 5
John H. Murphy, Bement..... 5

PIKE COUNTY:
Francis Fowler, Nebo..... 2
J. O. Bolin, Milton..... 4
*George Stebbins, Summer Hill..... 3
W. R. Wills, Pittsfield..... 5
W. H. Yates, Griggsville..... 3
**C. B. Dustin, Summer Hill..... 1

POPE COUNTY:
H. G. Cloud, New Liberty..... 4
J. E. Y. Hanna, Golconda..... 4
N. C. Weaver, New Liberty..... 5
Jasper N. Maynor, Eddyville..... 3

PULASKI COUNTY:
H. C. Fearnside, Villa Ridge..... 4
R. T. Calvin, Olmsted..... 3
J. H. Crain, Villa Ridge..... 4
W. A. Hight, Wetang..... 4
W. R. Crain, Mounds Junction..... 2

PUTNAM COUNTY:
W. Durley, Hennepin..... 5
Joshua L. Mills, Mt. Palatine..... 4
Geo. Hayslip, Granville..... 5
*Henry Hunter, Snachwine..... 2
W. S. Borley, Cottage Hill..... 4

RANDOLPH COUNTY:
*D. R. McMasters, Sparta..... 3
J. G. Eliff, Red Bud..... 3
J. H. Mace, Chester..... 4
Hugh Easdale, Tilden..... 4
S. W. McKelvey, Sparta..... 4

RICHLAND COUNTY:
R. C. Morris, Olney..... 1
S. M. Thompson, Parkersburg..... 5
John Camp, Claremont..... 5
W. E. Alcorn, Noble..... 2

ROCK ISLAND COUNTY:
Jesse S. Dailey, Cordova..... 4
John Buffum, Andalusia..... 5
Fred. Osborn, Osborn..... 5
J. A. Jordan, Orion..... 5
James Taylor, Taylor Ridge..... 4

SALINE COUNTY:
W. M. Joyner, Stone Fort..... 4
M. W. Willis, El Dorado..... 4
John W. Douthitt, Harrisburg..... 2
F. M. Prickett, Harrisburg..... 1
D. L. Grimes, Harrisburg..... 1

SANGAMON COUNTY:
M. D. McCoy, Rochester..... 5
A. A. Pickerell, Mechanicsburg..... 5
Geo. M. Caldwell, Williamsville..... 3
H. J. Conover, Bates..... 5
Geo. P. Weber, Pawnee..... 5

SCHUYLER COUNTY:
T. J. Window, Littleton..... 5
R. C. Noyes, Camden..... 5
John M. Darnell, Pleasant View..... 1
Lewis D. Erwin, Rushville..... 4
Simon Doyle, Rushville..... 5

SCOTT COUNTY:
Henry L. Gordon, Winchester..... 5
J. M. Leighton, Manchester..... 5
Henry Miner, Winchester..... 4
Geo. W. Martin, Winchester..... 5
J. B. Mays, Merritt..... 2

SHELBY COUNTY:
John Turner, Todd's Point..... 5
Charles W. March, Moweaqua..... 5
E. A. McCracken, Lakewood..... 3
L. H. Turner, Strasburg..... 5
Edward Roessler, Shelbyville..... 3

STARK COUNTY:
John Lackie, Osceola..... 4
H. H. Oliver, Toulon..... 5
William Nowlan, LaFayette..... 5
J. M. Thomas, Wyoming..... 5
J. H. Anthony, West Jersey..... 5

ST. CLAIR COUNTY:
D. F. Miller, Belleville..... 5
M. T. Stookey, Belleville..... 3
James H. Scott, Shiloh..... 1
John W. Wells, Marissa..... 4
Jacob Gundlach, Belleville..... 4

STEPHENSON COUNTY:
H. J. Porter, Freeport..... 1
Giles Turneaure, Freeport..... 5
F. B. Walker, Dakota..... 5
C. H. Rosenstiel, Freeport..... 4
Hiram Snyder, Lena..... 5

TAZEWELL COUNTY:
M. W. Messinger, Morton..... 5
J. B. Allen, Delavan..... 5
George W. Minier, Minier..... 4
D. Sapp, Pekin..... 5
C. D. Worstall, Green Valley..... 4

UNION COUNTY:
H. C. Bouton, Anna..... 3
W. J. Willard, Jonesboro..... 5
F. E. Peebles, Cobden..... 3

VERMILION COUNTY:
Fred. Tilton, Rossville..... 3
Robert Barnett, Indianola..... 5
J. H. Oakwood, Catlin..... 5
S. H. Oakwood, Pilot..... 4
J. C. Pierce, Ridge Farm..... 3
Thomas Armstrong, Rossville..... 4

WABASH COUNTY:
John F. Harrington, Allendale..... 4
John W. Habberton, Mount Carmel..... 3
Joseph Litherland, Allendale..... 5
M. L. Tilton, Mount Carmel..... 5
Thomas Riggs, Mount Carmel..... 4

WARREN COUNTY:
Henry Tubbs, Kirkwood..... 4
D. C. Graham, Cameron..... 5
J. D. Porter, Alexis..... 5
John A. Gordon, Roseville..... 5
A. T. Bruner, Monmouth..... 2

WASHINGTON COUNTY:
Henry Hoffman, Nashville..... 1
William C. Spencer, Dubois..... 4
John W. Yost, Beaucoup..... 3
H. H. Meyer, Stone Church..... 5

WAYNE COUNTY:
Henry Cramer, Mount Erie..... 4
John Wilson, Fairfield..... 4
L. M. Cisne, Cisne..... 3
A. M. Cable, Fairfield..... 3
G. M. Karr, Johnsonville..... 4

WHITE COUNTY:
John A. Spence, Norris City..... 4
Ezekiel Hunsinger, Burnt Prairie..... 3
Nathan Caley, Enfield..... 4
J. W. McHenry, Carmi..... 3
Boone Kershaw, Grayville..... 4

WHITESIDE COUNTY:
W. H. Colcord, Coleta..... 2
L. S. Pennington, Sterling..... 4
E. B. Warner, Morrison..... 2
Geo. B. Quigley, Prophetstown..... 4

WILL COUNTY:
Jacob Smith, Lockport..... 4
J. N. Fryer, Channahon..... 5
C. A. Westgate, Peotone..... 5
J. B. Fisher, DuPage..... 4
Samuel G. Nelson, Wallingford..... 3

WILLIAMSON COUNTY:
S. M. Mitchell, Corinth..... 5
D. R. Harrison, Herrin's Prairie..... 4
Geo. W. Davis, Crab Orchard..... 5
James W. Washburn, Carterville..... 3

WINNEBAGO COUNTY:
J. M. Herring, Durand Station..... 5
J. H. Kirk, Rockford..... 5
H. J. Rolasen, Durand Station..... 3
Webster Osborn, Winnebago..... 5
Wm. Atkinson, Harrison..... 5
C. A. Starr, Durand Station..... 4

WOODFORD COUNTY:
Joseph Wylie, Minonk..... 5
L. A. Gilpin, Cazenovia..... 4
A. H. Brubaker, Benson..... 4
C. M. Stephenson, Secor..... 4

Correspondents are requested to report any errors in names and postoffices.

A very large proportion of the correspondents made all the reports (5) called for in 1880, as will be seen by the figures opposite their respective names.

*Deceased during the year 1880.

**Appointed during the year 1880.

†Moved away during the year 1880.

‡Resigned on account of ill health.

Stations.		Elevation above sea level	Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Prevailing	Maximum vel. or force miles per h'r.	Days on which r'in or sn w'l	Total rainfall or melted snow	Depth of snow at close of month	No. days on which cloudiness averaged 0.8 or more	Relative humidity
		Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direct'n	M's.	No.	Inch	Inch	No.	Deg.
Northern Division.																					
County.	*Postoffice.*																				
Winnebago	Durand	798	52	10	33	42	47	19	.....	.....	.....	.....	.....	.....	W.	4	5	1.5	.....	11	.....
Boone	Belvidere	810	55	10	34	45	47	17	.....	.....	.....	.....	.....	.....	S.	5	13	3.63	.....	10	.....
McHenry	Marengo	925	55	10	33	45	46	17	.....	.....	.....	.....	.....	.....	S.	4	10	4.14	.....	10	.....
Kane	Elgin	777	54	14	35	40	47	20	29.70	28.58	29.19	1.12	29.65	28.70	S. & S. E.	3	8	3.55	.....	10	.....
Cook	Chicago	657	61	20	40	41	54	26.7	30.54	29.33	30.00	1.212	30.47	29.50	W.	4	15	3.53	.....	.....	74.4
Whiteside	Lyndon	.....	59	16	36	43	52	23	.....	.....	.....	.....	.....	.....	S.	6	9	3.85	.....	9	.....
Henry	Geneseo	.....	58	12	35	46	49	22	.....	.....	.....	.....	.....	.....	SE.	.....	4	3.3	.....	.....	.....
Central Division.																					
Stark	Elmira	.....	57	13	35	44	49	21	.....	.....	.....	.....	.....	.....	.....	.....	8	3.18	.....	.....	.....
Peoria	Peoria	460	62	23	41	39	54.7	27.6	30.15	29.11	29.66	1.04	30.11	29.24	S.	4	12	3.38	.....	13	79
Hancock	Augusta	681	62	18	40	44	55	.....	.....	.....	.....	.....	.....	.....	SW.	5	12	2.51	.....	18	.....
Sangamon	Springfield	640	64	23	44	41	56.7	30	30.57	29.50	30.04	1.07	30.37	29.60	S.	5	14	2.70	.....	.....	70.3
Macon	Decatur	684	68	19	43	49	59	30	30.45	29.38	29.96	1.07	30.40	29.50	SW.	.....	13	2.65	.....	15	77
Brown	Mt. Sterling	525	68	20	41	48	58.5	24	.....	.....	.....	.....	.....	.....	SE.	5	10	2.5	.....	16	.....
Southern Division.																					
Marion	Centralia	.....	68	28	50	40	59	29	.....	.....	.....	.....	.....	.....	NE & SW	5	7	3.6	.....	18	.....
Clay	Louisville	500	70	20	52	50	64	29	.....	.....	.....	.....	.....	.....	SW.	5	7	.....	.....	12	.....
Madison	Upper Alton	725	64	23	45	41	59.3	31	30.54	29.33	30.17	1.21	30.52	29.57	S.N&SW	5	10	1.93	.....	25	.....
Jasper	St. Marie	.....	72	19	46	53	63.3	27.6	.....	.....	.....	.....	.....	.....	S.	6	11	4.7	4	9	.....
White	Grayville	.....	66	22	44	44	58.6	30	.....	.....	.....	.....	.....	.....	N. NE.	5	7	4.00	.....	11	.....
Pope	Golconda	.....	72	24	49	48	62.3	31.6	.....	.....	.....	.....	.....	.....	S. & NW.	4	9	5.67	.....	10	.....

REMARKS FOR JANUARY.

BELVIDERE—G. B. Moss, observer. January, 1880, was the wettest in 12 years, 1872 being the dryest, 0.5 inches. Mean of 12 years, 2.25 inches rain fall. Only 3¼ inches of snow during the month. No sleighing and roads very muddy or rough during most of the month. Was the warmest January in 13 years; 7°.5 warmer than the next warmest January (1869), and 14° above the average. The record at Bowdoin College, Me., (the mean annual temperature being about the same as Belvidere), shows but one warmer January in a period of 52 years—from 1807 to 1859—viz: 35°.22 in 1838. Mean of minimum temperature for 13 years, 14°, or 24° below this year. The average range for 13 years is 57°; this year, 45°. Altogether a very remarkable month.

MARENGO—John W. James, observer. Frosts every day, except 3d, 4th, 6th, 8th, 11th, 19th and 26th. Solar halos, 24th, 26th and 28th. Lunar halos, 24th and 26th. The mean temperature of January, 1880, has been 15°.1 above the mean of 17 years past, and 5°.6 above the warmest January before recorded in that period. The thermometer has always before reached a lower point in January, and only one January has had a shorter range of temperature in that time.

ELGIN—E. L. Giddings, observer. This has been a very mild and cloudy month. Only 11 days that the daily mean was below freezing. Not any snow and but three entirely clear days.

CHICAGO—T. M. Ambler, U. S. A. observer. Greatest velocity of wind twenty miles per hour; west; total movement for the month, 5,295 miles. Comparative temperature of five Januarys: 1876, 33°.2; 1877, 22°.2; 1878, 31°.31; 1879, 21°.97; 1880, 40°.1. Precipitation: 1876, 3.22 inches; 1877, 1.91 inch; 1878, 1.31 inch; 1879, 0.54 inch; 1880, 3.53 inches.

LYNDON—S. A. Maxwell, observer. Lunar halos on the 23d and 24th. Meteors on the 12th and 15th. The highest observed temperature, 59°, at 7 o'clock A. M., on the 11th, which is remarkable on account of the time in the day the mercury stood highest. Have not known a parallel case in keeping records 15 years. The ice went out of Rock river on the 5th, causing serious inundations in places. Rainfall of 2.62 inches on the 3d.

ELMIRA—O. A. Blanchard, observer. Highest temperature on the 11th, at 7 A. M., and lowest on the 31st, at 7 A. M. Lunar halo on the 23d, at 8:10 P. M. Parhelia on the 14th, at 3:45 P. M., and shortly after sun-rise on the 23d. About half an inch of snowfall during the month.

PEORIA—Fred. Brendel, observer. Thunder storm on the 30th. Frosts on the 1st, 10th, 12th, 13th, 15th, 23d, 24th, 28th, 29th, 30th and 31st. Lunar halo on the 24th.

AUGUSTA—S. B. Mead, observer. Highest temperature, 62°, on the 18th and 27th. Lunar halos on the 15th, 22d and 25th.

SPRINGFIELD—T. B. Jennings, U. S. A. observer. Highest temperature on the 11th and lowest on the 31st. Greatest daily range, 29°, on the 11th; and lowest, 5°, on the 2d. Highest velocity of wind, 33 miles per hour, from the west, on the 9th. Total movement of wind, 8,048 miles. Solar halos on the 14th, 24th and 26th. Lunar halo on the 26th.

DECATUR—J. Stebbins King, observer. More or less fog every day from the 1st to the 10th. The 15th was the first day all observations were clear. Thunder storm on the 19th at 8 P. M., accompanied with zig-zag lightning. Rain and hail, with thunder and zig-zag lightning, on the 21st, at 2:30 p. m. Lunar halos on the 25th and 27th. Frosts on the 1st, 10th, 12th, 13th, 14th, 15th, 17th, 18th, 21st, 22d, 23d, 24th, 26th, 27th, 28th, 29th and 31st.

MT. STERLING—Wm. W. Bower, observer. Heavy fog on the 2d, 4th, 6th, 7th and 8th. Lunar halos on the 15th and 26th. Hail on the 29th.

UPPER ALTON—W. Leverett, observer. Dense fog on the 2d, 4th, 6th, 7th, 8th, 13th and 15th. Light thunder shower, 12:45 to 1:15 P. M., on the 21st. Hail and sleet on the 29th.

ST. MARIE—James Picquet, observer. Thunder storms on the 19th, 21st and 30th; on the 19th accompanied by very high wind. Lunar halos on the 26th and 29th.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storm on the 21st. High wind on the night of the 29th. On the 31st, wind from the north and ground frozen about one inch in depth.

GOLCONDA—J. E. Y. Hanna, observer. Rainbow at 7:30 A. M. High wind from the north at 4 P. M., on the 11th. Snow fell to the depth of 5 inches on the 12th. Heavy thunder storm with hail and a gale from southwest at 11 P. M., on the 21st.

Stations.	Elevation above sea level	Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Prevailing	Maximum velocity or force—miles per hour	Days on which rain fell	Total rainfall	No. of days on which cloudiness averaged 8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
NORTHERN DIVISION.																			
County. *Postoffice.*																			
Winnebago ..... Durand	798	52	—6	28	58	47	11	.....	.....	.....	.....	.....	.....	W.	4	4	2.4	6	.....
Boone ..... Belvidere	810	59	—3	31	62	48	11	.....	.....	.....	.....	.....	.....	SW., NW. & W.	7	8	1.24	6	.....
McHenry ..... Marengo	925	60	—2	27	62	44	8	.....	.....	.....	.....	.....	.....	NW. & S.	5	7	1.62	8	.....
Kane ..... Elgin	777	60	+5	29	55	46	10	29.92	28.55	29.18	1.37	29.85	29.80	S. & SW.	5	4	3.43	12	.....
Cook ..... Chicago	657	63	+12	35	51	53	16	30.79	29.37	30.03	1.42	30.75	29.52	SW.	5	13	2.91	.....	62.3
Whiteside ..... Lyndon	650	64	+3	31	61	50	18	.....	.....	.....	.....	.....	.....	W.	6	6	1.92	4	.....
Henry ..... Geneseo	650	64	—2	30	66	52	13	.....	.....	.....	.....	.....	.....	NW. & SE.	.....	.....	0 8	.....	.....
CENTRAL DIVISION.																			
Stark ..... Elmira	.....	61	—1	28	62	52	13	.....	.....	.....	.....	.....	.....	.....	.....	9	2.30	10	.....
Peoria ..... Peoria	460	65	+12	35	53	55	20	30 36	29.09	29.67	1.27	30.34	29.18	W.	5	9	3.95	2	73.
Hancock ..... Augusta	681	66	+6	36	60	58	18	.....	.....	.....	.....	.....	.....	NW. & W.	5	6	2.08	17	.....
Sangamon ..... Springfield	640	67	+13	38	54	57	22	30.83	29.47	30.07	1.36	30.73	29.58	S.	6	10	2.89	.....	58.9
Brown ..... Mt. Sterling	525	68	+10	37	58	57	20	.....	.....	.....	.....	.....	.....	SE.	5	8	2.9	6	.....
SOUTHERN DIVISION.																			
Marion ..... Centralia	.....	72	+2	44	70	68	15	.....	.....	.....	.....	.....	.....	SE. & SW	5	6	2.8	9	.....
Clay ..... Louisville	500	68	+2	40	66	63	18	.....	.....	.....	.....	.....	.....	NW.	6	6	2 2	15	.....
Madison ..... Upper Alton	725	68	+10	39	58	57	24	30 60	29.73	30.16	0.87	30.58	29.73	S., N, NW & SW	4	6	2.83	23	.....
Jasper ..... St. Marie	.....	66	+10	40	56	63	22	.....	.....	.....	.....	.....	.....	SE.	6	9	2.06	10	.....
White ..... Grayville	.....	62	+18	40	44	62	18	.....	.....	.....	.....	.....	.....	N. & NE.	8	7	4.5	10	.....
Pope ..... Golconda	.....	70	+18	42	52	59	28	.....	.....	.....	.....	.....	.....	S., W. & SW.	5	9	5.51	9	.....

REMARKS FOR FEBRUARY.

DURAND—D. A. Starr, observer. Light thunder storm on the 28th. Weather similar to January, alternate freezing and thawing.

BELVIDERE—G. B. Moss, observer. Thunder storm on the 24th. Mean of February 7° above the average of 13 years; have been 2° warmer. Mean of warmest, February, 1878, 32°.72, and mean of coldest, February, 1875, 4°.82. Mean of winter, 28°.59; of 13 winters, 20°.31; 1877-8 being the warmest, and 1874-5 the coldest, 12°.46. Precipitation of winter, 6.99 inches. Average precipitation of 12 winters, 5.42 inches; the wettest, 8.43 inches, in 1873-4, and the dryest, 2.08 inches, in 1871-2. Only indifferent sleighing in December, and none whatever since. The roads have been either very muddy or quite rough, consequently a dull winter for business.

MARENGO—John W. James, observer. Frosts every day, except 11th, 17th, 24th and 25th. Solar halos on the 13th, 14th and 15th, and Lunar halo on the 16th. Mean temperature of February, 1880, 4°.7 higher than usual. February, 1865, 1877, 1878 were warmer. Total precipitation, 0.41 inch more than usual. Snow on the ground from the 3d to the 8th. No sleighing. Mean temperature of winter of 1879-80, 26°.9; or 5°.7 higher than usual. The winters of 1863, 1871, 1876 and 1878 were warmer. Total precipitation for the winter 7.23 inches, or 2.31 inches more than usual. Only the winters of 1874 and 1876 were wetter. Winds for the winter (number, or times,) N., 31; NE., 16; E., 15; SE., 27; S., 56; SW., 36; W., 35; NW., 52; calm, 3. Total number of observations, 273. Total depth of snow for the winter, 7¼ inches. No sleighing to speak of.

CHICAGO—J. Mitchell, U. S. A. observer. Greatest velocity of wind, 32 miles per hour from the west, on the 28th. Total movement for the month, 6,053 miles. Comparative temperature for five Februarys: 1876, 31°.9; 1877, 36°.7; 1878, 35°.9; 1879, 27°.5, and 1880, 35°.1. Average precipitation of five Februarys, 2.192 inches; 1877 being the dryest, 0.06 inch, and 1876 the wettest, 3.90 inches.

LYNDON—S. A. Maxwell, observer. Thunder storms on the 11th and 24th. Lunar halo on the 16th. February 20, first geese observed going north.

ELMIRA—O. A. Blanchard, observer. Thunder storm, with hail, on the 24th. Highest temperature, 61°, at 2 P. M., on the 26th, and lowest, 1° below zero, at 7 A. M. on the 4th. Solar halo on the 14th, and Lunar halo on the 15th. Parhelia at 3 P. M. on the 1st, and at 6.50 A.M. on the 18th. Arrival of blackbirds and robbins on the 13th. Geese going north on the 20th.

PEORIA—Fred. Brendel, observer. Thunder storm on the 11th. Lunar halos on the 15th, 16th and 21st.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 4th and 24th. Frosts, February 1, 10, 12 to 15, 18 to 23, and 27. Lunar halos on the 15th, 16th and 19th.

SPRINGFIELD—T. B. Jennings, U. S. A. observer. Thunder storm on the 28th. Frosts, February 2, 6, 8, 9, 10, 14, 15, 20, 21, 22, 23 and 26. Solar halos on the 2d, 9th, 14th, 16th, 17th, 24th and 27th. Lunar halos, 16th, 23d and 27th. Greatest range of temperature, 37°, on the 28th, and the least, 6°, on the 5th. Highest velocity of the wind, 40 miles per hour, from the south, on the 11th. Total movement of the wind for the month, 7,826 miles. Thirteen clear and ten fair days.

MT. STERLING—W. W. Bower, observer. Thunder storms on the 11th and 25th. Slight rain, with hail, on the 20th. Parhelia at 4 P. M on the 2d.

CENTRALIA—J. L. Hallam, observer. Thunder storm on the 25th. Deepest snow this winter, 7 inches, on the 13th.

UPPER ALTON—W. Leverett, bbserver. Light snow, 1¾ inches, on the 13th. High wind from 10 P. M., of the 17th to 6 A. M. on the 18th.

ST. MARIE—James Picquet, observer. Thunder storms on the 18th and 28th. Lunar halo on the 24th. Splendid roads first ten days of the month. Some plowing done between the 20th and 26th. Snow 5½ inches deep at close of month.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on the 11th and 27th. Solar halos on the 1st and 21st. Lunar halos on the 2d, 18th and 23d. Slight snows on the 3d and 13th. Slight shock of earthquake—duration one minute—at 10:30 A. M. on the 27th.

Stations.	Elevation above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest daily mean	Thermometer. Lowest daily mean	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest daily mean	Barometer. Lowest daily mean	Wind. Prevailing	Wind. Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain fell	Rain and Snow. Total rainfall or melted snow	Rain and Snow. Depth of snow at close of month	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	Inch	No.	Deg.
Northern Division.																				
County. Postoffice.																				
Winnebago Durand	798	57	5	33	52	49	15	.....	.....	.....	.....	.....	.....	S. E.	3	6	2.6	.....	7	.....
Boone Belvidere	810	58	10	32	48	47	17	.....	.....	.....	.....	.....	.....	NE., SW. & S.	5	6	2.8	.....	5	.....
McHenry Marengo	925	58	7	32	51	46	16	.....	.....	.....	.....	.....	.....	NW. & S.	4	8	1.40	.....	9	.....
Kane Elgin	777	55	12	31	43	49	18	29.70	28.22	29.23	1.48	29.63	28.39	S. & SW.	3	7	2.36	.....	11	.....
Whiteside Lyndon	650	60	10	36	50	49	19	.....	.....	.....	.....	.....	.....	SW.	6	8	2.37	.....	5	.....
Henry Geneseo	650	65	7	34	58	49	13	.....	.....	.....	.....	.....	.....	NW. & SE.	.....	5	3.1	.....	.....	.....
Central Division.																				
Stark Elmira	.....	64	9	34	55	47	16	.....	.....	.....	.....	.....	.....	.....	.....	10	3.18	.....	7	.....
Peoria Peoria	460	67	18	40	49	53	26	30.10	28.62	29.71	1.48	30.02	28.81	NW.	6	8	3.30	.....	7	68
Hancock Augusta	681	69	15	38	54	56	23	.....	.....	.....	.....	.....	.....	SE. & NW.	5	9	2.16	.....	18	.....
Sangamon Springfield	640	69	21	42	48	60	28	30.49	29.04	30.12	1.45	30.40	29.23	NW.	6	12	2.37	.....	.....	59.9
Brown Mt. Sterling	525	69	15	41	54	58	26	.....	.....	.....	.....	.....	.....	SE.	7	10	1.5	.....	10	.....
Southern Division.																				
Marion Centralia	.....	72	26	43	46	66	26	.....	.....	.....	.....	.....	.....	NE.	6	6	4.4	.....	20	.....
Clay Louisville	500	66	20	42	46	53	33	.....	.....	.....	.....	.....	.....	SW.	8	8	2.7	.....	20	.....
Madison Upper Alton	725	74	22	43	56	63	27	30.42	29.37	30.16	1.05	30.41	29.50	N., S. & SE.	5	9	2.65	.....	28	.....
Jasper St. Marie	.....	72	18	42	54	66	30	.....	.....	.....	.....	.....	.....	N.	7	10	2.79	2.15	9	.....
White Grayville	.....	66	18	42	48	64	24	.....	.....	.....	.....	.....	.....	NNE. & NW.	6	6	6.5	.....	9	.....
Pope Golconda	.....	74	24	47	50	69	30	.....	.....	.....	.....	.....	.....	NE.	5	11	4.27	.....	10	.....

REMARKS FOR MARCH.

DURAND—C. A. Starr, observer. Thunder storm on the 3d. Aurora on the 18th.

BELVIDERE—G. B. Moss, observer. Thunder storms March 4th, 26th, 27th and 31st. Average temperature of March for 14 years, 39°.39; 1878 being the warmest, 43°.09, and 1877 the coldest, 28°.11—a range of about 20°. One peculiarity of March, 1880, is that the mean temperature of the month was 1½° lower than the mean of January, 1880. March, 1876, was the wettest, 6.13 inches, and 1873 the dryest, 0.79 inch; the average precipitation for 12 years being 2.60 inches. Very little plowing or sowing done during the month. Roads poor the first half of the month; the latter half fair.

MARENGO—John W. James, observer. Thunder storms on the 26th and 27th. Solar halos on the 1st, 5th, 6th and 9th. Mean temperature of March, 1880, was 2° higher than usual. In 19 years only five Marches have been warmer. Total precipitation, 1.13 inches *less* than usual. Commenced sowing wheat March 23. Frost all out of the ground on the 27th.

ELGIN—E. L. Giddings, observer. Thunder storms on the 4th and 26th. March generally dry and pleasant; only ¼ inch rainfall previous to the 26th.

LYNDON—S. A. Maxwell, observer. Thunder storms on the 25th, 26th and 27th. Solar halos on the 15th and 31st.

GENESEO—W. T. Allan, observer. A grand equinoxial on the 23d, 24th and 25th. Highest temperature on the 3d, and lowest on the 14th.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 25th and 26th. Rain with high wind on the 27th. Solar halo on the 6th, and Lunar halo on the 17th. The mean temperature of the month was but a fraction of a degree below January last. Snowfall for the month, 1.37 inch.

PEORIA—Fred. Brendel, observer. Thunder storms on the 4th, 25th and 27th. Frosts March 1st, 2d, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 20th, 21st and 30th.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 25th, 27th and 31st. Frosts every day except on the 3d, 4th, 7th, 23d, 25th, 26th, 27th, 28th and 31st. Lunar halo on the 31st.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 25th, 26th and 27th. Frost on March 1st, 2d, 6th, 7th, 8th, 9th, 17th, 20th, 21st, 29th and 30th. Solar halos on the 2d, 6th, 11th, 14th and 15th. Lunar halos on the 17th and 24th. Greatest daily range, 24°.5. Highest velocity of wind, 48 miles. Total movement of wind for the month, 8,681 miles.

MT. STERLING—Wm. W. Bower, observer. Thunder storms on the 4th, 25th, 26th and 31st. On the 4th and 25th accompanied with hail, and on the 27th, high wind from the southwest, continuing from 10 o'clock A. M. during the day and night; many fences were blown down. Solar halo on the 26th at 7 o'clock A. M. First appearance of larks on the 18th, and martins on the 30th.

CENTRALIA—J. L. Hallam, observer. Thunder storm on the 27th. Frosts from the 1st to 21st, inclusive, except 7th to 11th. The month has been cold and damp, with few days of sunshine. Atmospheric and electrical disturbances frequent and extreme.

LOUISVILLE—D. H. Chase, observer. Thunder storms on the 4th and 28th. Violent storm from the west from 8 o'clock A. M. to 12 P. M., tearing down half the fences and outhouses, and trees overturned. Worst storm in ten years.

UPPER ALTON—W. Leverett, observer. Thunder storms from 7 to 7:30 and from 9 to 9:30 P. M., on the 4th; from 8:15 to 9:15 A. M. on the 25th, and 1:30 to 2 P. M. on the 26th.

ST. MARIE—James Picquet, observer. Thunder storms on the 26th and 27th. The storm of the 27th was accompanied with a high wind, continuing from 7 A. M. until 7 A. M. on the 28th. Damage in this neighborhood restricted to fences blown down and a few roofs lifted off.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storm on the 5th. Hail storm on the 25th. On the 27th a gale; velocity 40 miles an hour; very little damage. Frosts on the 28th and 29th. About an inch of snow fell on the 12th, and 1½ inch on the 15th.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storm on the 26th. Frosts on the 29th and 30th. Lunar halo on the 24th. Very high wind all day on the 27th. Atmosphere a dull yellow.

Stations.	Elevation above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest mean daily	Thermometer. Lowest mean daily	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest mean daily	Barometer. Lowest mean daily	Wind. Prevailing	Wind. Maximum velocity or force—miles per hour.	Rain. Days on which rain fell	Rain. Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																			
County. *Postoffice.*																			
Winnebago.....Durand.....	798	83	22	45	61	58	30	.....	.....	.....	.....	.....	.....	SW.	6	7	5.55	10	.....
McHenry.....Marengo.....	925	79	20	46	59	66	32	.....	.....	.....	.....	.....	.....	NWS. & SW.	7	13	3.10	10	.....
Kane.....Elgin.....	777	76	27	47	49	67	33	29.55	28.53	29.12	1.02	29.51	28.79	W.	5	10	4.19	8	.....
Cook.....Chicago.....	657	80	27	49	53	68	33	30.40	29.24	29.91	1.16	30.36	29.49	SW.	5	19	5.20	.....	62.9
Whiteside.....Lyndon.....	650	83	26	50	57	68	35	.....	.....	.....	.....	.....	.....	SW.	7	10	3.42	3	.....
Henry.....Geneseo.....	550	84	27	48	57	66	32	.....	.....	.....	.....	.....	.....	NW.	.....	6	3.10	.....	.....
Central Division.																			
Stark.....Elmira.....	.....	84	26	45	58	68	30	.....	.....	.....	.....	.....	.....	.....	.....	9	.....	4	.....
Peoria.....Peoria.....	460	83	28	55	55	72	39	30.06	28.99	29.58	1.07	30.04	29.14	S.	6	9	5.94	7	61
Hancock.....Augusta.....	681	78	35	47	43	71	39	.....	.....	.....	.....	.....	.....	NW. & SW.	5	10	5.74	18	.....
Sangamon.....Springfield...	640	82	31	57	51	74	41	30.46	29.36	29.95	1.07	30.42	29.49	S.	5	10	3.23	.....	54.2
Brown.....Mt. Sterling..	525	86	30	57	56	75	40	.....	.....	.....	.....	.....	.....	SE.	6	10	2.2	.....	.....
Southern Division.																			
Marion.....Centralia.....	.....	84	30	58	54	78	36	.....	.....	.....	.....	.....	.....	NW. & SW.	8	4	3.5	12	.....
Clay.....Louisville.....	500	84	27	57	57	75	44	.....	.....	.....	.....	.....	.....	SW.	8	5	2.5	8	.....
Madison.....Upper Alton..	650	88	33	59	55	80	40	30.39	29.67	30.07	0.72	30.39	29.76	SNW. & N.	5	9	3.08	25	.....
Jasper.....St. Marie.....	.....	84	28	56	56	79	36	.....	.....	.....	.....	.....	.....	S.	7	10	2.53	5	.....
White.....Grayville.....	675	84	26	50	58	80	38	.....	.....	.....	.....	.....	.....	N. NW.	.....	8	4.00	11	.....
Pope.....Golconda.....	.....	86	34	61	52	78	43	.....	.....	.....	.....	.....	.....	NW.	5	8	3.74	5	.....

REMARKS FOR APRIL.

DURAND—C. A. Starr, observer. Thunder storms on the 3d and 18th. The storm of the 18th was remarkable for the amount of rain and hail, some of the latter measuring eight inches in circumference and weighed three ounces. This village was exempt from wind and it is probable that the cyclone that struck the north part of Rockton passed high over this point, as there was great commotion and roaring of the elements overhead.

MARENGO—J. W. James, observer. Thunder storms on the 3d, 4th, 22d and 25th. Frosts April 1, 6, 7, 8, 9, 11, 12, 17, 20, 27, 28 and 30. Solar halos on the 1st, 9th, 15th, 21st and 27th. Lunar halos on the 14th and 20th. Mean temperature of April 1°.2 higher than usual, and precipitation 0.40 inch more than usual. First half of the month very dry; last half of the month very wet, with sudden and extreme changes of temperature and high winds. In nineteen years twelve Aprils have been colder, six warmer, and one the same. Four have been wetter.

ELGIN—E. L. Giddings, observer. Thunder storms on the 2d, 3d, 23d and 24th. Frosts on 6th, 7th, 10th, 11th and 16th.

CHICAGO—J. Mitchell, U. S. A., observer. Greatest velocity of wind, 36 miles per hour, from the S.W., on the 15th. Total movement of the wind for the month, 8.214 miles. Average mean temperature of eight Aprils, 46°.9, 1877 being the warmest—115°.7—and 1874 the coldest—38°.7. Average precipitation of eight Aprils, 3.46 inches, 1873 being the wettest—6.12 inches—and 1877 the dryest—1.81 inch.

LYNDON—S. A. Maxwell, observer. Thunder storms on the 3d, 4th, 18th, 23d, and 24th; on the latter date accompanied with hail. On the 18th, at about 3 o'clock P. M., a small, though for the time destructive, tornado passed in a northeasterly direction through the townships of Newton and Garden Plain, in this county. Several buildings were destroyed but no lives were lost. On the 24th the wind attained a velocity of 65 miles per hour, doing considerable damage.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 3d, 18th, 22d, and 23d. Frosts on the 1st, 6th, 8th, 9th, 12th and 30th. Lunar halos on the 20th and 21st.

PEORIA—Fred. Brendel, observer. Thunder storms on the 3d, 14th, 18th, 19th, 23d, and 24th. Frosts on the 1st, 7th, 8th, 11th and 12th. Lunar halo on the 21st.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 8th, 15th, 22d, 23d and 24th. Hail on the 18th, 23d and 24th. Frosts on April 1, 6, 7, 8, 11, 12, 16, 19, 20 and 29. Lunar halos on the 21st and 22d. High wind near midnight on the 2d, and a very high wind all the afternoon of the 6th.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 3d, 18th, 19th, 22d, 23d and 24th. Hail on the 23d and 24th. Frosts on the 1st, 7th, 8th, 11th, 17th and 30th. Solar halos on the 6th, 14th, 18th and 20th. Lunar halos on the 17th and 20th.

MT. STERLING—Wm. W. Bower, observer. Thunder storms on the 3d, 14th, 15th, 18th, 22d, 23d and 24th. Hail on the 14th, 15th and 24th. Frosts April 1, 7, 8, 11, 12, 17, 20, 27 and 30. Lunar halo on 20th, 8:30 P. M.

CENTRALIA—J. L. Hallam, observer. Thunder storms on the 14th and 18th. Frosts on the 7th, 8th, 9th, 26th, 27th and 30th. High winds on the 12th, 13th, 14th, and very high on the 19th.

LOUISVILLE—D. H. Chase, observer. Thunder storms on the 3d, 15th and 24th. Frosts on the 26th and 27th. Solar and lunar halos on the 15th.

UPPER ALTON—W. Levérett, observer. Thunder storms on the 2d, 3d, 15th, 18th and 24th. High winds on the 3d, 18th, 24th, and unusually high wind on the 30th, doing, however, but slight damage in the near vicinity.

ST. MARIE—James Picquet, observer. Thunder storms on the 3d, 14th, 15th, 18th and 24th. Hail on the 24th. Frosts on April 7, 8, 9, 10, 11, 12 and 20. Lunar halos on the 17th, 20th and 21st.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storms on the 2d, 15th, 24th and 25th. Hail on the 19th and 24th. Frosts on the 8th, 9th and 20th. A remarkable month for high winds. Night of the 18th a severe gale, doing some little damage, blowing down orchard trees, fences, etc. No person injured.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on the 13th, 15th, 19th and 25th. Frosts on the 9th, 11th and 12th. Lunar halos on the 18th, 20th and 21st. A violent gale from the southwest at 10 P. M. on the 15th. A tornado on the 19th at 3 A. M. from the southwest, accompanied with heavy thunder; path, 40 rods wide; duration, one minute, unroofing houses and barns, prostrating trees and fences.

Stations.		Elevat'n above sea level	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	*Wind. Prevailing	Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain or snow fell	Total rainfall or melted snow	Depth of snow at close of month	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
		Feet	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's	No.	Inch.	Inch	No.	Deg.
Northern Division.																					
County.	*Postoffice.*																				
Winnebago	Durand	798	90	32	64	58	76	53	.....	.....	.....	.....	.....	.....	SW.	4	7	3.51	.....	8	.....
Boone	Belvidere	810	92	43	65	49	78	56	.....	.....	.....	.....	.....	.....	S., SW. & E.	6	5	4.66	.....	3	.....
McHenry	Marengo	925	90	41	65	49	77	51	.....	.....	.....	.....	.....	.....	SW.	5	10	2.68	.....	6	.....
Kane	Elgin	777	84	44	65	40	77	49	29.60	28.70	29.15	0.90	29.56	28.80	S. to SW.	4	7	6.43	.....	.....	.....
Cook	Chicago	657	85	37	65	48	76	49	30.43	29.43	29.94	1.00	30.35	29.63	SW.	4	12	4.97	.....	.....	65
Henry	Geneseo	650	92	45	66	47	77	56	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.00	.....	.....	.....
Whiteside	Morrison	670	97	47	69	45	79	60	.....	.....	.....	.....	.....	.....	SW.	7	9	4.71	.....	4	.....
Central Division.																					
Stark	Elmira	.....	90	44	66	46	77	57	.....	.....	.....	.....	.....	.....	.....	.....	10	5.23	.....	1	.....
Peoria	Peoria	460	92	43	70	49	82	61	30.02	29.17	29.62	0.85	29.98	29.26	S.	3	19	6.73	.....	6	64
Hancock	Augusta	681	87	49	68	38	78	61	.....	.....	.....	.....	.....	.....	SW.	5	11	5.38	.....	12	.....
Sangamon	Springfield	640	86	44	69	42	77	60	30.36	29.50	29.97	0.86	30.31	29.72	S.	5	8	5.76	.....	.....	61
Brown	Mt. Sterling	525	90	48	70	42	80	62	.....	.....	.....	.....	.....	.....	SE.	6	10	6.8	.....	13	.....
Southern Division.																					
Marion	Centralia	.....	89	52	70	37	82	63	.....	.....	.....	.....	.....	.....	NE. & SW.	6	5	5.75	.....	6	.....
Clay	Louisville	500	90	45	70	45	75	61	.....	.....	.....	.....	.....	.....	SW.	6	5	4.5	.....	12	.....
Madison	Upper Alton	725	90	48	71	42	80	61	30.36	29.73	30.09	0.63	30.30	29.81	S. & E.	4	8	3.15	.....	23	.....
Jasper	St. Marie	.....	86	41	68	45	78	54	.....	.....	.....	.....	.....	.....	S.	7	12	4.075	.....	4	.....
White	Grayville	.....	92	50	71	42	92	50	.....	.....	.....	.....	.....	.....	N., NE., S., SE.	3	8	6.3	.....	11	.....
Pope	Golconda	.....	90	49	72	41	79	58	.....	.....	.....	.....	.....	.....	E.	3	10	7.50	.....	4	.....

*Wind—Maximum velocity or force is estimated as follows: 1—Very light breeze, varies between 1 and 2 miles per hour. 2—Gentle breeze, varies between 3 and 5 miles per hour. 3—Fresh breeze, varies between 6 and 14 miles per hour. 4—Strong wind, varies between 15 and 29 miles per hour. 5—High wind, varies between 30 and 39 miles per hour. 6—Gale, varies between 40 and 59 miles per hour. 7—Strong gale, varies between 60 and 69 miles per hour. 8—Violent gale, varies between 70 and 79 miles per hour. 9—Hurricane, varies between 80 and 99 miles per hour. 10—Most violent hurricane, varies from 100 upwards.

REMARKS FOR MAY.

DURAND—C. A. Starr, observer. Thunder storms on the 26th, 27th and 29th. Frosts on the 15th and 22d.

BELVIDERE—G. B. Moss, observer. Thunder storms on the 5th, 9th, 20th, 25th, 29th and 31st. Very slight frost on the 15th. The mean temperature of the month has been exceeded by only one year, (1870—65°.23) in 14 years. Mean of 14 years, 58°.95, the coldest May being that of 1867, 51°.46. Mean temperature of May 7; 77°.7, the highest I have ever recorded so early in May. Mean precipitation of 12 Mays, 3.74 inches, 1876 being the wettest, 6.6 inches, and 1870 the dryest, one and one-tenth inches. Mean temperature of spring (March 1 to May 31), 48°.99; mean of 14 springs, 45°.35, 1867 being the coldest, 41°.14, and 1878 the warmest, 50°.34.

MARENGO—John W. James, observer. Thunder storms on the 8th, 26th and 31st. Solar halo on the 12th. Polar bands on the 14th. Mean temperature of May, 7°.2 above the average, and 0°.3 above the warmest before recorded here for May in a period of 19 years. The amount of rainfall 0.68 inch less than usual. Mean temperature of spring, 3°.3 higher than usual, and the total precipitation 1.43 inch less than usual. In 19 years three springs were warmer and eight dryer. Mean temperature of April and May, 4°.2 higher than usual; only in 1870 has this period been warmer. Precipitation same time, 0.26 less than usual.

ELGIN—E. L. Giddings, observer. Thuner storms on the 8th, 26th and 31st. Hail on the 8th. Lunar halo on the 29th. Thirteen clear days in May. Precipitation for the month, 0°.59 more than May, 1879.

CHICAGO—J. Mitchell, U. S. A., observer. Greatest velocity of wind, 28 miles per hour. Total movement of the wind for the month, 6,141 miles. Average mean temperature of eight Mays, 59°.1, May, 1873, being the warmest, 67°.3, and 1875 the coolest, 55°.5. Average precipitation of eight Mays, 3.831 inches, May, 1873, being the wettest, 7.39 inches, and May, 1877, the dryest, 1.81 inch.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 8th, 9th, 19th, 25th, 27th and 31st. Slight hail on the 9th. Lunar halo on the 20th.

PEORIA—Fred. Brendel, observer. Thunder storms on the 8th, 9th, 10th, 19th, 20th, 26th, 27th and 31st.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 8th, 9th, 10th, 19th, 25th, 28th and 31st. Highest thermometer on the 6th. Grapes and blackberries in bloom on the 20th.

SPRING FIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 8th, 9th, 10th and 19th. Solar halos on the 10th, 18th, 22d, 26th and 29th. Highest temperature, 86° on the 7th and 24th; lowest, 44°, on the 1st. Greatest daily range, 28°, on the 16th, and least, 9°, on the 21st. Greatest velocity of wind, and direction, 30 miles, from the south. Total movement of wind, 7,358 miles. There were 16 clear and 9 fair days.

MT. STERLING—Wm. W. Bower, observer. Thunder storms on the 8th, 9th, 19th, 26th and 31st. Hail on the 8th.

CENTRALIA—J. L. Hallam, observer. Thunder storms on the 8th, 10th, 25th, 27th and 29th. The month has been remarkable for health, even temperature and farming interests.

LOUISVILLE—D. H. Chase, observer. Thunder storms on the 9th, 21st, 27th and 31st. Hail storm on the 9th. Thunder storms have been accompanied with very high wind and extremely vivid lightning.

UPPER ALTON—W. Leverett, observer. Light frost on the 1st. Partial rainbow on the 20th, at 7:15 P. M.

ST. MARIE—James Picquet, observer. Thunder storms on the 1st, 10th, 20th, 25th, 28th, 29th and 31st. Hail on the 10th. Light frost on the 1st. Lunar halos on the 17th, 18th, 19th and 24th. The month was remarkable for the number of thunder storms, heavy rainfall and clear skies.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storms on the 4th, 10th, 25th and 29th. Light frost on the 1st. Heavy rainfall on the 28th and 29th, streams rising and threatening crops on the low lands.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on the 9th, 24th, 27th, 29th and 31st. Hail storms on the 9th and 31st. Light frost on low lands on the 1st. Lunar halos on the 1st and 19th. High wind from west at 4 P. M. on the 20th.

Stations.	Elev'n above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest mean daily	Thermometer. Lowest mean daily	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest mean daily	Barometer. Lowest mean daily	Wind. Prevailing	Wind. Maximum velocity or force—miles per hour.	Rain and Snow. Days on which rain fell	Rain and Snow. Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																			
County. *Postoffice.*																			
Winnebago....Durand	798	89	50	67	39	80	56	.....	.....	.....	.....	.....	.....	S.	4	11	5.49	9	.....
Boone.....Belvidere	810	91	54	71	37	82	59	.....	.....	.....	.....	.....	.....	SW. & S.	4	12	6.51	2	.....
McHenry.....Marengo	925	89	43	70	46	81	55	.....	.....	.....	.....	.....	.....	SW.	6	13	5.28	7	.....
Kane.....Elgin	777	89	50	71	39	83	57	30.35	29.35	30.04	1.00	30.32	29.54	SW.	5	10	5.40	11	.....
Cook.....Chicago	657	91	52	70	39	83	56	30.27	29.21	29.91	1.06	30.23	29.50	SW.	5	13	3.50	.....	67.7
Whiteside.....Morrison	670	92	58	73	34	82	63	.....	.....	.....	.....	.....	.....	SW.	6	12	5.74	4	.....
Average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.33	.....	.....
Central Division.																			
Stark.....Elmira	.....	94	52	71	42	81	58	.....	.....	.....	.....	.....	.....	.....	.....	11	3.26	.....	.....
Peoria.....Peoria	460	97	55	76	42	87	64	29.91	29.01	29.60	0.80	29.90	29.17	S.	6	9	2.32	4	66.
Hancock.....Augusta	681	87	55	72	32	81	61	.....	.....	.....	.....	.....	.....	SW.	5	10	2.68	18	.....
Sangamon.....Springfield	640	93	55	74	38	85	62	30.28	29.46	29.95	0.82	30.24	29.53	S.	5	13	2.47	.....	66.2
Brown.....Mt. Sterling	525	90	58	74	32	83	63	.....	.....	.....	.....	.....	.....	SE.	6	9	2.5	16	.....
Average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.64	.....	.....
Southern Division.																			
Marion.....Centralia	.....	92	62	75	30	84	67	.....	.....	.....	.....	.....	.....	SW. & SE.	6	10	2.8	9	.....
Clay.....Louisville	500	96	62	72	34	72	62	.....	.....	.....	.....	.....	.....	SW.	5	5	4.	10	.....
Madison.....Upper Alton	725	94	60	73	34	85	65	30.27	29.76	30.08	0.51	30.24	29.80	S., SE. & NE.	4	9	2.48	28	.....
Jasper.....St. Marie	.....	92	53	74	39	85	62	.....	.....	.....	.....	.....	.....	S.	5	12	2.91	6	.....
White.....Grayville	.....	98	52	70	46	83	65	.....	.....	.....	.....	.....	.....	S., SW.	5	10	6.	12	.....
Pope.....Golconda	.....	94	60	76	34	85	62	.....	.....	.....	.....	.....	.....	E. & NW.	4	10	3.57	3	.....
Average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.63	.....	.....

REMARKS FOR JUNE.

DURAND—C. A. Starr, observer. Thunder storm on the 13th, 23d and 26th.

BELVIDERE—G. B. Moss, observer. Thunder storms June 4, 5, 6, 9, 12, 14, 24, 25, 27 and 30. Bright "sundog" at 6 P. M. on the 2d. Mean average temperature of 14 years, 67°83, 1873 being the warmest, 71°82, and 1869 the coolest, 64°01. Maximum temperature of June in 14 years was 100° on June 30, 1870, and the minimum temperatute for same time 42° in 1876 and 1877. Mean precipitation of 12 Junes, 5.28 inches, 1869 being the wettest, 9.68 inches, and 1870 the driest, 0.54 inch.

MARENGO—John W. James, observer. Thunder storms on June 5, 6, 12, 13, 24, 27 and 30. Solar halos June 2, 7, 11, 18, 26, 28 and 30. Mean temperature of June 2°, 2 higher than usual. Junes '67, '70, '72, '73 and '74 were warmer. Mean of 19 Junes, 66°.8. June, 1873, was the warmest—71°.8; and 1869 the coolest—63°.3. Rainfall 1.33 inch more than usual. Mean rainfall of 19 Junes, 3.95 inches. June 1868 was the wettest—9.17 inches. June 1863 was the driest—0.64 inch.

ELGIN—E. L. Giddings, observer. Thunder storms on the 5th and 27th. Solar halos on the 8th. The mean temperature of June 1880 has been 6° higher than June 1879, and 4° higher than 1878. Rainfall 2.20 inches more than 1879, and 2.31 more than 1878.

CHICAGO—J. Mitchell, U. S. A., observer. Greatest velocity of wind, 36 miles per hour, from S. W. Total movement of the wind for the month, 5,094 miles. There were 8 clear days, 8 cloudy, and 13 days on which rain fell. Average mean temperature of 8 Junes, 67°.18. Junes 1873, '74 and '80 were warmer, each being 72°.2, and 1875 coolest, 63°. Mean precipitation of the past 8 Junes, 3.945 inches. June 1877 being the wettest—6.04 inches, and 1873 the driest—1.44 inch.

MORRISON—S. A. Maxwell, observer. Thunder storms on June 4, 5, 13, 14, 24, 29 and 30. Hail on the 29th and 30th. Solar halos on the 7th, 8th, 18th and 30th. The month has been unmarked by unusual atmospheric phenomena. The Mississippi river attained an unprecedentedly high stage of water, culminating on Friday, June 25. Portions of the cities of Fulton, Ill., Lyons and Clinton, Iowa, situated on the low lands bordering the banks of the river, were entirely surrounded by the raging waters. Railroad tracks were submerged and boats took the place of hacks to carry passengers; sidewalks were transformed into pontoon bridges. A vast amount of property and some lives were lost.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 13th, 14th, 24th and 28th. Highest temperature, 2 P. M. on the 11th, and lowest at 7 A. M. on the 1st. Monthly mean temperature at 7 A. M., 66°.7; and at 9 P. M., 66°.86.

PEORIA—Fred. Brendel, observer. Thunder storms on the 6th, 13th, 14th and 24th.

AUGUSTA—S. B. Mead, observer. Thunder storms on June 4, 5, 9, 13, 14, 24, 26 and 29. Catalpa in bloom on the 2d. Morello cherries ripe on the 22d. Rye harvest commenced on the 18th, and wheat harvest on the 23d.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 5th, 9th, 24th, 26th, 27th and 29th. Solar halos on the 18th, 23d, 25th and 30th. Maximum velocity of wind and direction, 32 miles per hour, from the south. Total movement of the wind for the month, 5,974 miles.

MT. STERLING—Wm. W. Bower, observer. Thunder storms on the 5th, 9th, 13th, 14th, 24th and 29th.

CENTRALIA—J. L. Hallam, observer. Thunder storms on the 13th, 19th and 25th. The month has been remarkable for a uniform temperature at 7 A. M. and 9 P. M. Light showers have been frequent the latter part of the month. No local storms or severe destructive gales have visited this locality.

LOUISVILLE—D. H. Chase, observer. Thunder storms on the 16th, 26th and 27th.

UPPER ALTON—W. Leverett, observer. Light showers on June 4, 5, 9, 14, 19, 25, 26, 27 and 29.

ST. MARIE—James Picquet, observer. Thunder storms June 14, 24, 25, 27, 28 and 29. Lunar halo on the 1st. Very little rainfall during the entire wheat harvest.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storms on the 5th, 6th, 23d, 24th, 27th and 30th. From sundown on the 5th until sunrise the next morning a very high wind prevailed, having a velocity ranging from 40 to 60 miles per hour; however, no serious damage resulted from it.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on June 6, 24, 25, 26, 28, 29 and 30. Solar halo on the 8th, and lunar halo on the 13th. Only 0.42 inch rainfall previous to the 24th.

Stations.	Elevat'n above sea level	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	*Winds. Prevailing	Maximum velocity or force—miles per hour.	Rain and Snow. Days on which rain fell	Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																			
County — *Post-office.*																			
Winnebago....Durand	798	96	46	71	50	86	59	.....	.....	.....	.....	.....	.....	S.	3	9	4.32	7	.....
Boone.....Belvidere	810	95	54	72	41	84	57	.....	.....	.....	.....	.....	.....	S W.	5	11	6.21	1	.....
McHenry .....Marengo	925	93	46	71	47	82	59	.....	.....	.....	.....	.....	.....	W.	3	14	2.68	4	.....
Kane .....Elgin	777	93	57	72	36	84	58	30.25	29.86	30.05	0.39	30.16	29.92	S.	4	11	4.39	8	.....
Cook .....Chicago	657	95	57	73	39	85	63	30.16	29.71	29.94	0.45	30.12	29.79	S W.	4	15	3.07	.....	72.2
Central Division.																			
Stark.....Elmira	.....	96	56	73	40	85	60	.....	.....	.....	.....	.....	.....	.....	.....	8	2.31	.....	.....
Peoria.....Peoria	460	98	52	79	46	90	67	29.78	29.45	29 63	0.33	29.77	29.51	W.	3	7	3.17	1	68.
Hancock.....Augusta	681	93	59	76	34	85	66	.....	.....	.....	.....	.....	.....	S W & N W.	4	7	1.35	.....	.....
Sangamon.....Springfield	640	96	55	77	41	88	66	30.17	29.74	29.97	0.43	30.13	29.87	N W.	4	9	1.82	.....	61.7
Brown .....Mt. Sterling	525	96	61	79	35	88	69	.....	.....	.....	.....	.....	.....	S E & S W.	4	6	0.8	7	.....
Southern Division.																			
Marion .....Centralia	.....	94	60	77	34	85	68	.....	.....	.....	.....	.....	.....	N E & S W.	5	4	7.8	8	.....
Clay.....Louisville	500	100	58	76	42	85	70	.....	.....	.....	.....	.....	.....	.....	.....	2	2.5	9	.....
Madison .....Upper Alton	725	95	62	79	33	86	69	30.21	29.85	30.10	0.36	30.21	29.91	S & S W.	3	9	4.40	25	.....
Jasper .....St. Marie	.....	96	59	80	37	85	70	.....	.....	.....	.....	.....	.....	N.	4	10	2.55	3	.....
White .....Grayville	.....	98	52	75	46	87	65	.....	.....	.....	.....	.....	.....	S W & N W.	2	8	4.00	8	.....
Pope .....Golconda	.....	95	64	78	31	86	72	.....	.....	.....	.....	.....	.....	N W & E.	5	7	6.07	4	.....

*Winds—Maximum velocity or force is estimated as follows: 1—Very light breeze, varies between 1 and 2 miles per hour. 2—Gentle breeze, varies between 3 and 5 miles per hour. 3—Fresh breeze, varies between 6 and 14 miles per hour. 4—Strong wind, varies between 15 and 29 miles per hour. 5—High wind, varies between 30 and 39 miles per hour. 6—Gale, varies between 40 and 59 miles per hour. 7—Strong gale, varies between 60 and 69 miles per hour. 8—Violent gale, varies between 70 and 79 miles per hour. 9—Hurricane, varies between 80 and 99 miles per hour. 10—Most violent hurricane, varies from 100 upwards.

REMARKS FOR JULY.

DURAND—C. A. Starr, observer. Thunder storm on the 4th. The rains have been light; only one, on the 12th, being a rainfall of an inch. Heavy fog on the 29th, and a fog-bow at sunrise.

BELVIDERE—G. B. Moss, observer. Thunder storms July 1, 4, 8, 10, 16, 18, 21, 22, 26 and 31. Meteors on the 27th, 29th and 30th. Mean temperature of July 1 to 16, 75°.82, and from the 17th to the 31st, 67°.95—a difference of 7°.87. Mean of 14 Julys, 72°.66, 1868 being the hottest, 78°.61, and 1869 the coolest, 68°.21. Mean temperature of the hottest day in 14 Julys, 87°.46, in 1874, being 3½ degrees warmer than any day in July, 1880. Average precipitation of 12 Julys, 4.74 inches, July, 1874, being the dryest, 0.40 inch, and 1878 the wettest, 7.2 inches.

MARENGO—John W. James, observer. Thunder storms on the 10th and 13th. Solar halos on the 2d, 3d, 4th, 9th and 22d. Mean temperature of July, 1880, 0°.5 lower, and its rainfall 1.40 inch less than usual. Mean temperature of July 1 to 15, 74°.9, and of 16th to 31st, 67°.8, or 7°.1 lower. Rains were frequent but light. In 19 years last past, July, 1868, was the warmest, 78°, and 1865 the coolest, 65°.1. July, 1852, the wettest, 9.65 inches, and 1871 the dryest, 1.04 inch.

ELGIN—E. L. Giddings, observer. Thunder storms on the 10th and 13th. Aurora on the 5th.

CHICAGO—James Mitchell, U. S. A., observer. Greatest velocity of wind, 34 miles per hour, from the southwest, on the 25th. Total movement of the wind for the month, 5,[illegible] miles. There were 12 clear days, 18 fair days, and one cloudy day. Average mean temperature of 6 Julys, 73°.15, 1875 being the coolest, 68°.6, and 1879 the hottest, 76°. Mean precipitation of the last 6 Julys, 4,668 inches, July, 1875, being the wettest, 7.18 inches, and 1877 the dryest, 2.98 inches.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 1st, 4th, 8th and 23d. Highest temperature 96°, at 2 P. M. on the 13th, and the lowest 56°, at 9 P. M. on the 20th, and at 7 A. M. on the 21st. Monthly mean at 9 P. M. 0°.48 warmer than at 7 A. M.

PEORIA—Fred. Brendel, observer. Thunder storms on the 1st, 4th and 19th. Lunar halo on the 17th.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 4th, 8th, 13th and 18th.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 1st, 2d, 18th, 19th and 25th. Solar halos on the 5th, 11th and 22d. Greatest daily range of temperature 25° on the 24th, and the least daily range 7° on the 2d. There were 16 clear, 13 fair, and 2 cloudy days. Maximum velocity of wind, and direction, 22 miles per hour, from the northwest on the 29th. Total movement of the wind for the month, 5,104 miles.

MT. STERLING—W. W. Bower, observer. Thunder showers on the 1st, 2d, 4th and 19th. Parhelia at 6:30 A. M. on the 10th.

CENTRALIA—J. L. Hallam, observer. Thunder storms on the 1st, 2d and 14th.

UPPER ALTON—W. Leverett, observer. Thunder showers on the 1st, 2d, 3d, 7th, 8th, 9th, 14th, 19th and 31st.

ST. MARIE—James Picquet, observer. Thunder storms on July 1, 2, 4, 5, 9, 13, 14, 19 and 25. Heavy hail storm on the 2d, from northwest to southeast—a belt about one mile wide. Some of the hail stones were more than two inches in diameter. Of the 2.55 inch rainfall for the month, 1.93 inch fell on two days, 1st and 26th. Are beginning to suffer from drouth.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storms on July 1, 2, 3, 4, 14, 15 and 19. Hail on July 2 and 20, when the thermometer fell to 52°, and remained low for three days. Since the 4th, showers have been light. Water is becoming scarce, and crops are suffering.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on the 1st, 2d, 3d, 5th, 15th and 31st. Hail on the 2d, at 1 P. M., accompanied by high wind. High wind from the west at 2 P. M. on the 15th.

Stations.		Elev'n above sea level.	Thermometer. Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Barometer. Highest	Lowest	Mean	Range of	Highest daily mean	Lowest daily mean	Wind. Prevailing	Maximum velocity or force—miles per hour	Rain. Days on which rain fell	Total rainfall or melted snow	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
		Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's	No.	Inch.	No.	Deg.
Northern Division.																				
County.	*Postoffice.*																			
Winnebago	Durand	798	96	50	70	46	82	62	.....	.....	.....	.....	.....	.....	S.	4	14	8.11	12	.....
Boone	Belvidere	810	100	52	72	48	85	61	.....	.....	.....	.....	.....	.....	SW.	4	8	4.44	5	.....
McHenry	Marengo	925	96	45	71	51	84	60	.....	.....	.....	.....	.....	.....	SW.	3	11	4.25	7	.....
Kane	Elgin	777	90	50	71	40	81	59	30.33	29.82	30.16	0.51	30.28	29.84	NE.	3	9	3.51	10	.....
Cook	Chicago	657	93	53	73	40	84	62	30.24	29.66	29.97	0.58	30.19	29.71	NE.	4	15	4.47	.....	70.6
Whiteside	Morrison	670	100	56	76	44	85	62	.....	.....	.....	.....	.....	.....	SW.	.....	9	4.15	3	.....
Henry	Geneseo	.....	95	52	71	43	81	58	.....	.....	.....	.....	.....	.....	SW.	.....	9	6.2	.....	.....
Central Division.																				
Stark	Elmira	.....	99	54	73	45	84	58	.....	.....	.....	.....	.....	.....	.....	.....	9	2.52	.....	.....
Peoria	Peoria	460	100	53	79	47	89	65	29.88	29.39	29.65	0.49	29.85	29.44	S.	3	7	3.38	1	67
Hancock	Augusta	681	97	56	76	41	87	63	.....	.....	.....	.....	.....	.....	SW. & NW.	5	8	2.44	21	.....
Fulton	Canton	600	102	56	76	46	89	62	29.58	29.15	29.34	0.43	29.50	29.20	SW.	2	6	11.02	1	.....
Sangamon	Springfield	640	97	52	77	45	88	63	30.25	29.68	29.99	0.57	30.19	29.75	S.	4	7	1.80	.....	59.6
Brown	Mt. Sterling	525	100	60	79	40	89	65	.....	.....	.....	.....	.....	.....	NE.	4	5	2.4	9	.....
Southern Division.																				
Marion	Centralia	.....	98	56	77	42	87	66	.....	.....	.....	.....	.....	.....	SE.	4	2	0.65	2	.....
Clay	Louisville	500	101	58	72	43	89	71	.....	.....	.....	.....	.....	.....	SW.	5	5	4.5	5	.....
Madison	Upper Alton	725	100	58	79	42	90	66	30.27	29.97	30.13	0.30	30.26	29.97	S. & SE.	4	5	1.42	23	.....
Pope	Golconda	.....	96	58	78	38	86	64	.....	.....	.....	.....	.....	.....	NW. SW.	4	7	2.56	2	.....

REMARKS FOR AUGUST.

BELVIDERE—G. B. Moss, observer. Thunder storms on the 9th, 19th, 24th, 25th, 27th and 30th; brilliant auroral display on the 12th; month very dry to the 24th. Mean temperature of 14 Augusts, 70°.18. 1880 being the warmest, 72°.29, and 1875 the coldest, 67°.31. August, 1874, was nearly as warm as 1880, being 72°.26; mean temperature of summer, 71°.61; of 14 years, 70°.31. The hottest summer was 1874, 72°.78, and the coldest 1875, 66°.78. There were severe frosts on the nights of August 22d and 23d, 1875. Precipitation of August, 1880, 4.44 inches; mean of 12 Augusts, 2.50 inches. August, 1869, was wetter, 4.96 inches, and 1875 drier, 1.17. Precipitation of summer, 17.16 inches; mean of 12 summers, 12.53 inches; that of 1869 being the wettest, 20.03 inches, and 1874 the driest, 5.05 inches. A very severe drouth the 1st to 25th; only 0.82 of an inch of rainfall during that time. Mercury indicated 100° on the 18th; only twice before has it reached that point in 14 years.

MARENGO—John W. James, observer. Thunder storms on the 9th, 19th, 23d and 27th. Aurora on the 12th; solar halos on the 9th and 15th; lunar halo on the 16th, and polar bands on the 16th. Mean temperature of August, 1880, 2° higher than usual. In 19 years past only August, 1867, was hotter; Augusts of 1876 and 1875 were the same. Amount of rainfall, 0.59 inch more than usual. The first three weeks of the month were excessively dry; six-sevenths of the rain fell from the 23d to 30th. In 19 years past only five Augusts have had a greater rainfall. Mean temperature of the summer, 70°.7, or 1°.2 higher than usual. Amount of rainfall, 12.20 inches, or 0.51 more than usual. In 19 years only five summers were hotter and seven wetter.

ELGIN—E. L. Giddings, observer. Thunder storms on the 9th, 19th and 27th. Aurora on the 12th.

CHICAGO—J. Mitchell, U. S. A., observer. Mean temperature of six Augusts, 72°.3, 1878 being the warmest, 74°.1, and 1875 the coolest, 68°.7. Mean precipitation of six Augusts, 3.49 inches; August, 1880, the wettest, 4.47 inches, and 1879 the driest, 0.45 inch. The highest temperature was on the 18th, 93°, and the lowest, 53°, on the 4th. Highest barometer, 30.238, on the 19th, and the lowest, 29.662, on the 20th. Greatest velocity of wind, 24 miles; distance traveled by the wind during the month, 5,726 miles.

MORRISON—L. A. Maxwell, observer. Thunder storms August 17th, 19th, 22d, 27th, 28th and 31st. Meteors on the 9th, 10th and 11th. No rain during the first half of the month.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 1st, 19th, 24th, 27th and 31st. Aurora on the 12th. Monthly average temperature at 7 A. M., 0°.81; cooler than the average at 9 P. M. On thirteen days the temperature at 2 P. M. was between 90 and 99 degrees, and at 1 P. M. on the 19th, 100°.

PEORIA—Fred. Brendel, observer. Thunder storms on the 1st, 27th, 29th and 31st.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 1st, 24th and 28th. Lunar halo on the 15th.

CANTON—N. S. Wright, observer. Thunder storms on the 1st, 27th, 28th and 31st. Aurora on the 12th. On August 1, two storms gathered, one in the W. by S., the other NW.; both seemed to move nearly east. The storm from the west reached here at 7:50 P. M.; very little wind; lightning sharp; thunder not unusually heavy; rain fell in torrents, flooding the earth in a few moments. This storm passed E. by N., uniting, evidently, with the one that gathered in the NW., when the two returned with similar results. Nearly all the bridges on wagon roads were carried away. The extent of the storm, of the character described, was about three miles in diameter. No guage measured the quantity of water that fell. On a creek, where a high-water mark had been kept for many years, the water reached a point two feet above any previous record. Counting this rainfall at 10 inches (the lowest estimate by any other being 12 inches, judging by the vessels that were setting out from buildings, and known to be empty before the storm), and our rainfall for the month is 11.02 inches.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms August 1, 23, 27, 28, 29, 31. Aurora on the 12th. Meteors on the 24th. The mean temperature of the month, 74°.5 higher than August, 1879, and the precipitation 2.02 inches less. Highest velocity of wind, 24 miles; direction, NW.; total movement of wind, 5,284 miles.

MT. STERLING—Wm. W. Bower, observer. Thunder storms August 1, 9, 17, 27 and 31.

CENTRALIA—J. L. Hallam, observer. The most remarkable phenomena during the month has been the uniformly high temperature, a cloudless sky morning and evening, with clouds indicating rain in the afternoon, for 20 days, during the latter part of the month. Have been local rains sufficient for farming operations in some localities within ten miles of us. Health remarkably good.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms August 2, 10, 11, 20 and 30; hail on the 10th; smoky on the 12th, 14th, 15th, 16th and 25th; fog on the 11th, 22d, 23d and 29th.

Stations.	Elevation above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest mean daily	Thermometer. Lowest mean daily	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest mean daily	Barometer. Lowest mean daily	Wind. Prevailing	Wind. Maximum velocity of force—miles per hour	Rain. Days on which rain fell	Rain. Total rainfall or melted snow	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	Mil's	No.	Inch.	No.	Deg.
Northern Division.																			
County. Postoffice.																			
Winnebago.....Durand	798	88	30	59	58	74	44	.....	.....	.....	.....	.....	.....	S.	3	7	8.44	8	.....
Boone.....Belvidere	810	86	38	60	48	76	43	.....	.....	.....	.....	.....	.....	N.W. S.W.	4	8	6.92	2	.....
McHenry.....Marengo	925	83	32	59	51	75	44	.....	.....	.....	.....	.....	.....	S.W.	5	9	4.02	5	.....
Kane.....Elgin	777	85	36	61	49	75	46	30.34	29.75	30.09	0.59	30.30	29.93	S.W.	.....	6	4.25	.....	.....
Cook.....Chicago	657	85	40	63	45	75	49	30.00	29.60	30.00	0.40	30.23	29.79	S.W.	4	13	2.25	.....	66.9
Whiteside.....Morrison	670	87	32	61	55	77	50	.....	.....	.....	.....	.....	.....	N.W.	5	7	4.94	.....	.....
Central Division.																			
Stark.....Elmira	.....	88	34	59	54	75	43	.....	.....	.....	.....	.....	.....	.....	.....	4	1.74	.....	.....
Peoria.....Peoria	460	88	38	65	50	79	50	29.95	29.41	29.70	0.54	29.88	29.47	S.	4	8	3.09	3	72
Hancock.....Augusta	681	83	41	64	42	77	49	.....	.....	.....	.....	.....	.....	N.W. & S.W.	4	6	2.66	.....	.....
Fulton.....Canton	600	88	36	62	52	77	50	29.68	29.23	29.49	0.45	29.66	29.28	S.W.	3	6	2.46	4	.....
Sangamon.....Springfield	640	86	41	65	45	79	52	30.34	29.72	30.06	0.62	30.27	29.80	S.	4	11	3.15	.....	61.9
Brown.....Mt. Sterling	525	90	44	66	46	81	54	.....	.....	.....	.....	.....	.....	S.E.	4	5	1.9	.....	.....
Southern Division.																			
Clay.....Louisville	500	96	40	66	56	83	56	.....	.....	.....	.....	.....	.....	S.W.	4	6	7.7	.....	.....
Marion.....Centralia	.....	91	38	63	53	78	50	.....	.....	.....	.....	.....	.....	N.E. & S.W.	4	3	1.1	.....	.....
Jasper.....St. Marie	.....	90	41	65	49	78	52	.....	.....	.....	.....	.....	.....	W.	4	8	3.01	8	.....
Madison.....Upper Alton	725	91	48	68	43	81	55	30.33	29.91	30.17	0.42	30.32	29.92	S., N.W. & N.	3	4	1.47	20	.....
Pope.....Golconda	.....	87	46	67	41	80	55	.....	.....	.....	.....	.....	.....	E. & N.E.	5	8	4.53	7	.....

REMARKS FOR SEPTEMBER.

DURAND—C. A. Starr, observer. Thunder storms on the 19th and 31st. Frosts on the 9th, 14th and 30th. On the 19th 3.45 inches rain fell between 10 A. M. and 5 P. M.

BELVIDERE—G. B. Moss, observer. Thunder storms September 1, 2, 3, 15, 17, 18 and 28. Frosts on the 14th and 30th. Aurora on the 27th. Mean temperature of 14 Septembers 61°.8, 1878 being the warmest, 66°.59, and 1868 being the coolest 55°.78, or about 11° range of mean temperature. Maximum temperature in 14 years, 94° in 1874. Minimum temperature in same period, 29° in 1871. Mean precipitation of 13 years, 3.37 inches. Only September, 1880, was wetter (7.16 inches) than the present month.

MARENGO—John W. James, observer. Thunder storms September 1, 2, 3 and 18. Frost on the 14th and 30th. Aurora on the 27th. Solar halo on the 30th. Lunar halo on the 17th. The mean temperature of September has been 2° lower than usual, and 12°.4 lower than the mean of August, a greater difference between these than I have ever recorded. In 19 years, 5 Septembers have been colder. The rainfall has been 0.03 inch more than usual. A tornado passed 3 or 4 miles south of this place on the 3d. No buildings destroyed, but considerable damage done to trees and fences; width of path, 60 to 200 feet. During the passage of the tornado, 0.75 inch of rain fell in 8 minutes. First frost fell on the 14th. Period without frost from May 1 to September 13—136 days.

ELGIN—E. L. Giddings, observer. Frosts September 9, 13, 22 and 30.

CHICAGO—James Mitchell, U. S. A., observer. Mean temperature of 6 Septembers, 65°.3, 1877 being the warmest, 66°.6, and 1875 the coolest. Mean precipitation for the same months, 2.595 inches; 1875 the wettest, 4.39 inches, and 1879 the dryest, 1.18 inch. Prevailing direction of wind: from the S. on 5 days, E. 1, NE. 6, SE. 3, SW. 7, W. 4, NW. 4 days. Greatest velocity of wind, 23 miles per hour, from the south, on the 15th; same velocity on the 26th from the south-west. Total movement of wind for the month, 6,046 miles.

MORRISON—S. A. Maxwell, observer. Thunder storms on September 1, 3, 15, 18 and 28. Frosts on September 9, 14, 27, 28 and 30. Aurora on the 27th. The average temperature of the month, 5° lower than September, 1880. First frost during the past 6 years have occurred on the following dates: 1875, September 22; 1876, September 27; 1877, September 18; 1878, September 12, and 1879, September 9.

ELMIRA—O. A. Blanchard, observer. Thunder storms on the 18th and 19th. Frosts on the 9th, 10th, 11th and 30th.

AUGUSTA—S. B. Mead, observer. Thunder storms on the 18th, 19th and 25th. Frost on the 9th, 14th and 30th.

CANTON—N. S. Wright, observer. Light frost on the 8th, 9th and 10th. Ice formed on 14th, and heavy frost on the 30th. Lunar halo at 9 P. M. on the 12th.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 3d and 19th. Frosts September 9, 10, 14 and 30. Solar halo on the 5th. Mean temperature of this month 3°.7 higher, and the precipitation 2.31 inches greater than the same month in 1879. Prevailing direction of the wind: From the N. 2 days, NE. 4, SE. 3, S 11, S. 11, W. 2 and NW. 8 days; greatest velocity, 24 miles per hour, from the west; total movement for the month, 5,999 miles.

MT. STERLING—W. W. Bower, observer. Thunder storms on the 19th and 25th. Frost on the 9th, 14th and 28th.

CENTRALIA—J. L. Hallam, observer. No thunder storms during the month. Frosts September 9, 10, 14, 29 and 30. This month has been remarkably dry, and all kinds of vegetation has suffered in an unusal degree. Dews have been very light, and often entirely absent.

ST. MARIE—James Picquet, observer. Thunder storm on the 3d. Light frost on the 15th and 29th; neither doing any injury.

UPPER ALTON—W. Leverett, observer. Thunder storms on the 3d, 7th and 19th. Frost on the 9th, 10th and 30th.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storm on the 5th. Light frost on the 14th, 15th and 30th. Gale from the north-west, at 4 P. M. on the 19th, followed by rain.

Stations.	Elevation above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest mean daily	Thermometer. Lowest mean daily	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest mean daily	Barometer. Lowest mean daily	Wind. Prevailing	Wind. Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain fell	Rain and Snow. Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																			
County. *Postoffice.*																			
Winnebago ..... Durand	798	78	25	46.5	53	66	30	.....	.....	.....	.....	.....	.....	S.	7	6	0.76	7	.....
McHenry ..... Marengo	.....	77	25	46	52	65	29	.....	.....	.....	.....	.....	.....	SW. & S.	8	6	2.37	0	.....
Kane ..... Elgin	777	76	27	47	49	63	31	30.47	29.40	30.09	1.07	30.42	29.40	SW. & NW.	.....	4	2.09	.....	.....
Cook ..... Chicago	657	78	28	51.3	50	69	37.7	30.43	29.38	30.03	1.05	30.38	29.49	SW.	5	10	3.09	.....	64.9
Henry ..... Geneseo	650	78	20	46	58	66	31	.....	.....	.....	.....	.....	.....	SW. & NW.	.....	2	0 8	.....	.....
Central Division.																			
Stark ..... Elmira	.....	78	17	45	61	66	31	.....	.....	.....	.....	.....	.....	.....	.....	3	1.73	.....	.....
Peoria ..... Peoria	460	82.5	25	51.6	57.5	73	35	30 06	29.11	29.71	0.95	30.02	29.26	S.	6	3	1.75	5	71.5
Hancock ..... Augusta	681	78	23	50	55	70	35	.....	.....	.....	.....	.....	.....	SW. & NE.	5	4	1.38	19	.....
Fulton ..... Canton	600	82	22	49	60	69	33	29.78	28.96	29.47	0.82	29.76	29 06	SW.	5	3	1.76	5	.....
Sangamon ..... Springfield	640	79	26	53.6	53	69.6	37.6	30.49	29.46	30.08	1.03	30.43	29.59	S.	5	9	2.04	.....	58.7
Brown ..... Mt. Sterling	525	82	24	53	58	70.5	37.5	.....	.....	.....	.....	.....	.....	SE. & SW.	7	7	1.07	8	.....
Southern Division.																			
Clay ..... Louisville	500	80	30	62	50	70	33	.....	.....	.....	.....	.....	.....	SW.	5	5	3.2	15	.....
Marion ..... Centralia	.....	84	29	49	55	74	36	.....	.....	.....	.....	.....	.....	SW. & NE.	5	4	2.7	8	.....
Jasper ..... St. Marie	.....	79	26	53	53	72	38	.....	.....	.....	.....	.....	.....	SE.	6	7	2.85	.....	.....
Madison ..... Upper Alton	725	80	30	54.6	50	71	38	30.51	29.76	30.20	0.75	30.50	29.86	S., SW. & NW.	6	6	2.00	20	.....
White ..... Grayville	.....	82	32	48	50	72	32	.....	.....	.....	.....	.....	.....	S. & SE.	.....	4	4.00	8	.....
Pope ..... Golconda	.....	80	34	57	46	70	39	.....	.....	.....	.....	.....	.....	NW., NE & E.	5	11	6.71	8	.....

REMARKS FOR OCTOBER.

DURAND—C. A. Starr, observer. On the 16th, the wind blew a gale from early morning until late at night.

MARENGO—John W. James, observer. Thunder storms on the 1st and 2d; frost, Oct. 4, 13, 17, 24, 27, 29 and 31; solar halo on the 9th. Mean temperature of October, 0°.8 lower than usual; mean temperature, 1st to 15th, 55°; mean of 16th to 31st, 38°. Rainfall for the month 0.10 inch more than usual. The gale of wind on the 16th the heaviest I ever saw; much damage done to trees, fences, stock, etc., and a very general destruction to the common kind of farm wind-mills.

ELGIN—E. L. Giddings, observer. Frosts, October 3, 6, 12, 17, 18, 21, 22, 28 and 30.

CHICAGO—J. Mitchell, U. S. A., observer. Highest temperature on the 10th, and lowest on the 18th. Mean temperature of eight Octobers, 52°.375; October, 1870, was the warmest, 60°.5, and 1875 the coldest, 48°; mean precipitation of eight Octobers, 3.5 inches, 1877 being the wettest, 6.51 inches, and 1876 the dryest. Prevailing winds from the N., 3 days, NE. 3, E. 1, SE. 3, S. 6, SW. 9, W. 4, and NW. 2 days; greatest velocity, 30 miles; and total movement for the month, 6.902 miles.

ELMIRA—O. A. Blanchard, observer. Highest temperature at 2 P. M. on the 2d, and the lowest at 7 A. M. on the 24th. Solar halo at 4 P. M. on the 18th, and lunar halo at 7:25 P. M. same day. Parhelia near sunset on the 2d; snow flurries 7 to 9:30 A. M. on the 23d.

PEORIA—Fred. Brendel, observer. Thunder storm on the 2d; frosts, 18, 23, 24 and 31. Lunar halo on the 13th.

AUGUSTA—S. B. Mead, observer. Thunder storm on the 2d; frosts, October 4, 6, 7, 13, 15, 21, 22, 23, 28, 29 and 31; first hard freeze on the 18th; first snow on the 19th. Wind, SE.

CANTON—N. S. Wright, observer. Thunder storm on the 2d; frosts, October 4, 18, 24, 28 and 31. Diffuse lightning N. on the 15th; strong wind from SW. began at 10 P. M., increased to high wind on Saturday, and continued until late Sunday night; damage principally to fences and trees blown down.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Thunder storms on the 25th and 28th; frosts, October 4, 7, 13, 20, 23, 24, 28 and 31. Solar halo on the 2d, 9th and 15th; lunar halo on the 13th. Greatest daily range of temperature, 30°, on the 13th and 20th; and least daily range, 9°, on the 17th. Mean temperature of the month, 8°.3 lower than October, 1879, and the precipitation 0.79 inch more than that month. Prevailing wind: from the N. 5 days, NE. 2, E. 1, SE. 2, S. 8, SW. 4, W. 6, and NW. 3 days. Highest velocity of the wind, 30 miles, and the total movement for the month, 6,587 miles.

MT. STERLING—Wm. W. Bower, observer. Thunder storms on the 15th and 25th; frost on the 4th and 7th; first snow on the 16th, and morning of the 17th, and ice 0.3 inch thick on the morning of the 18th. Wild geese flying SW., 5 P. M., on the 18th.

CENTRALIA—J. L. Hallam, observer. Thunder storm on the 15th; frosts, October 16, 17, 18, 19, 22, 23, 24, 30 and 31.

ST. MARIE—James Picquet, observer. Thunder storm on the 15th; frost on 7, 17, 18, 22, 23 and 24. Hi h wind on the 15th, continuing three days and nights. First ice formed on the 17th, and first snow on the 19th.

UPPER ALTON—W. Leverett, observer. Thunder storms, October 3, 14, 15, 20, 21 and 25. Ice on the 18th, 23d, 24th and 31st. On the 16th, gale from the west all day, and high wind on the 17th.

GRAYVILLE—J. L. Rhinehart, observer. Thunder storms on the 15th and 16th; frost on the 17th. Month dry to 15th. Heavy wind on the 15th and 16th.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storms on the 3d, 14th and 15th; frost on the 23d and 24th. Gale from the north at 4 P. M., and from the northwest at 11 P. M. on the 15th.

Stations.	Elevation above sea level	Thermometer. Highest	Thermometer. Lowest	Thermometer. Mean	Thermometer. Range of	Thermometer. Highest daily mean	Thermometer. Lowest daily mean	Barometer. Highest	Barometer. Lowest	Barometer. Mean	Barometer. Range of	Barometer. Highest daily mean	Barometer. Lowest daily mean	Wind. Prevailing	Wind. Maximum vel. or force miles per h'r.	Rain. Days on which rain or snow fell	Rain. Total rainfall	No. days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direct'n	M's.	No.	Inch	No.	Deg.
Northern Division.																			
County. *Postoffice.*																			
Winnebago ....Durand	798	60	-14	24	74	51	6	.....	.....	.....	.....	.....	.....	W.	4	8	1.31	10	.....
Boone.....Belvidere	810	62	-10	25	72	53	-4	.....	.....	.....	.....	.....	.....	NW-SW	4	8	1.83	7	.....
McHenry .....Marengo	.....	60	-7	24	67	52	-1	.....	.....	.....	.....	.....	.....	NW-SW	5	6	1.01	12	.....
Kane .....Elgin	777	60	-3	26	63	53	2	30.65	29.52	30.18	1.13	30.63	29.64	S. & SW.	5	5	1.24	13	.....
Cook.....Chicago	657	65	1	31.6	64	56.7	13.7	30.72	29.39	30.17	1.33	30.65	29.54	W.	.....	14	0.87	.....	65.7
Whiteside .... Morrison	670	64	-3	27	67	52.5	5.5	.....	.....	.....	.....	.....	.....	NW.	6	4	1.30	6	.....
Henry.....Geneseo	650	59	-3	26	62	52.5	1.5	.....	.....	.....	.....	.....	.....	NW-SW	.....	5	1.5	.....	.....
Central Division.																			
Stark .....Elmira	.....	63	-8	23.7	71	50	-2	.....	.....	.....	.....	.....	.....	.....	.....	7	1.83	.....	.....
Peoria.....Peoria	460	64	1.5	30.2	63	53.7	7.7	30.31	29.09	29.82	1.22	30.28	29.23	W.	5	7	1.92	10	73 5
Fulton.....Canton	600	64	-5	29.5	69	51	3.3	29.97	28.98	29.56	0.99	29.95	29.07	SW.	3	10	2.16	10	.....
Sangamon .....Springfield	640	64	6	32.7	58	53.2	11.7	30.80	29.48	30.23	1.32	30.74	29.70	NW.	4	12	1.60	.....	63.2
Macon.....ecatur	684	68	-4	29	72	58	8	30.76	29.33	30.14	1.43	30.65	29.57	SW.	.....	13	2.19	.....	75
Southern Division.																			
Marion .....Centralia	.....	64	-4	29	68	51	3.6	.....	.....	.....	.....	.....	.....	SE. NE.	4	4	3.8	11	.....
Clay .....Louisville	500	70	-11	28.7	81	55	8	.....	.....	.....	.....	.....	.....	NW.	4	8	1.8	20	.....
Madison.....Upper Alton	725	63	0	32	63	57.7	11	30.63	29.67	30.25	0.96	30.61	29.71	S NW-N.	4	9	3.06	26	.....
Jasper.....St. Marie	.....	60	-11	29.7	71	51	5	.....	.....	.....	.....	.....	.....	S. NW	4	12	4.75	10	.....
White.....Grayville	.....	82	2	42	80	68	.....	.....	.....	.....	.....	.....	.....	W-NW.	6	4	.....	10	.....
Pope.....Golconda	.....	65	1	34.6	64	59.3	13.6	.....	.....	.....	.....	.....	.....	NW-E-N	5	12	4.37	13	.....

REMARKS FOR NOVEMBER.

BELVIDERE—G. B. Moss, observer. Highest temperature on the 3d, 62°, and lowest on the 22d, -10°; mean of 13 Novembers, 31°.81, 1880 being the coldest, 24°.51, and 1870 the warmest, 36°.62; mean of autumn, 43°.32; of 13 autumns, 47°.25, 1879 being the warmest, 51°.59, and 1880 the coldest, 43°.32. Precipitation of November, 1.83 inch; average of 13 Novembers, 2.39 inches; 1875 the driest, 0.64 inch, and 1879 the wettest, 5.89 inches. Precipitation of autumn, 10.94 inches, average of 13 autumns 8.45 inches, 1872 being the driest, 3.96 inches, and 1866 the wettest, 11.17 inches. Mean temperature of first half of November, 1880, 36°.14; of the last half, 8°.62, a difference of 28°.52; the mean of November 21, -3°.92, about 3° colder than any former November day in 13 years.

MARENGO—John W. James, observer. Frosts every day, except on November 3, 4, 5, 7 and 8; solar halos on the 17th and 24; lunar halos on the 6th, 17th and 19th; polar bands on the 9th and 17th; parhelia 4:15 P. M., on the 8th, and 7:30 A. M., on the 13th. Mean temperature of November, 9°.3 lower than usual, and 2°.2 lower than the coldest November I have recorded here; mean temperature of 1st to 15th 36°, and of 16th to 30th, 12°, a difference of 24°; the low mean temperature of 16th to 30th unparalleled in my experience for November. The amount of rainfall and melted snow 0.94 inch less than usual. only 4 Novembers in 19 years were drier; mean temperature of autumn of 1880 was 43°, or 4° lower than usual. The autumn of 1869 had the same mean temperature, but none were colder. The total precipitation of autumn 0.29 inch less than usual.

ELGIN—E. L. Giddings, observer. Lunar halos on the 14th and 16th. November has been a cold, dry month, very little snow. Mean temperature for month 11° lower than 1878, and 10° lower than 1879.

CHICAGO—James Mitchell, U. S. A., observer. Frost every day, except November 1, 2, 3, 4, 5, 6, 8, 9, 10 and 11. Highest temperature 65°, on the 3d, and lowest, 1°, on the 21st. Average mean of 8 Novembers, 38°.53, 1878 being the warmest, 43°.36, and 1880 the coldest, 31°.6, or 6°.93 colder than usual, and 11°.76 colder than November, 1878. Mean precipitation of 8 Novembers, 2.64 inches, 1875 being the driest, 0.74 inch, and 1877 the wettest, 6.08 inches. Direction of the wind: N. one day; S. seven; SW. eight; W. eleven; NW. three days. Total movement for the month, 6,614 miles.

MORRISON—S. A. Maxwell, observer. Solar halos on the 3d and 19th; lunar halo on the 19th; grand meteor at 4:40 P. M., on the 18th.

ELMIRA—O. A. Blanchard, observer. Solar halo on the 3d, at 9:10 A. M. Highest temperature 63°, at 2 P. M., on the 2d, and the lowest, -8°, at 7 A. M., on the 22d; mean temperature at 7 A. M. 4°.30 lower than at 9 P. M.

PEORIA—Fred. Brendel, observer. Frost on the 7th and every day from 11th to 30th.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Frost November 2, 12, 13, 14, 15, 19, 22, 27, 29; solar halos on the 2d, 13th and 27th; lunar halo on the 8th. Mean temperature of November, 1880, 12° lower than November, 1879. Precipitation 3.52 inches less than November, 1879. Maximum velocity of wind and direction, 29 miles per hour from SW. Total movement of the wind for the month, 6,498 miles.

DECATUR—J. Stebbins King, observer. Frost every day except on the 4th and 5th. Ice merchants cutting ice 5 inches thick, on the 22d. Snow fell on 9 days.

LOUISVILLE—D. H. Chase, observer. Last half of month unusually cold, with 3 days snow; snow 4 inches deep at close of the month.

UPPER ALTON—W. Leverett, observer. Ice in Mississippi, at Alton, 7 inches thick, on November 30.

ST. MARIE—James Picquet, observer. Copious fall of snow on the 16th and 17th. Polar wave on the 18th, and thermometer indicated -11° on the 22d. Heavy snow on the 24th, and was 9¾ inches deep at close of month.

GRAYVILLE—J. L. Rhinehart, observer. Ten inches snow fell during the month.

GOLCONDA—J. E. Y. Hanna, observer. Thunder storm on the 4th. Frost November 1, 7, 14, and from 15 to 27. Nine and one-half inches snow fell on and after the 13th, and was 8 inches deep at the close of the month.

Stations.	Elevation above sea level	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Wind. Prevailing	Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain or snow fell	Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Feet.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																			
County. *Postoffice.*																			
Winnebago.....Durand	798	40	-20	17	60	37	-16	.....	.....	.....	.....	.....	.....	W.	5	10	0.9	15	.....
Boone.....Belvidere	810	40	-20	16	60	36	-16	.....	.....	.....	.....	.....	.....	NW., SW. & N.	5	5	1.76	15	.....
McHenry.....Marengo	925	40	-22	16	62	36	-16	.....	.....	.....	.....	.....	.....	NW.	5	6	0.75	18	.....
Kane.....Elgin	777	37	-18	17	55	35	-11	30.60	29.35	30.11	1.25	30.55	29.65	W. to NW.	4	9	0.55	17	.....
Cook.....Chicago	657	50	-15	23	65	41.7	-6.7	30.73	29.31	30.10	1.42	30.64	29.51	W.	5	20	1.01	.....	71.9
Whiteside.....Morrison	670	45	-17	18	62	41	-13	.....	.....	.....	.....	.....	.....	W.	6	5	0.25	12	.....
Henry.....Geneseo	650	44	-17	19	61	42	-12	.....	.....	.....	.....	.....	.....	NW.	.....	6	0.5	20	.....
Central Division.																			
Stark.....Elmira	.....	44	-23	16	67	40	-16.5	.....	.....	.....	.....	.....	.....	.....	.....	9	0.43	.....	.....
Peoria.....Peoria	460	50	-16.5	22	66.5	46	-9.5	30.36	28.99	29.77	1.37	30.27	29.19	W.	7	7	0.96	12	83
Fulton.....Canton	600	49	-19	20	68	42	-9.5	29.94	28.81	29.48	1.13	30.89	29.00	NW.	3	5	0.78	12	.....
Sangamon.....Springfield	640	57	-14	26	71	48.5	-6	30.79	29.28	30.17	1.51	30.73	29.48	NW.	5	10	1.10	.....	69.1
Southern Division.																			
Marion.....Centralia	.....	65	-15	23	80	55	-8	.....	.....	.....	.....	.....	.....	NW. & SE.	4	6	1.8	23	.....
Clay.....Louisville	500	58	-16	35	74	.....	.....	.....	.....	.....	.....	.....	.....	NW.	5	5	2.5	.....	.....
Madison.....Upper Alton	725	54	-14	27	68	46.3	-8.6	30.66	29.64	30.21	1.02	30.64	29.77	NE. W. & SW.	3	10	2.94	27	.....
White.....Grayville	.....	60	-6	.....	66	52	-3.3	.....	.....	.....	.....	.....	.....	N. NW.	5	8	2.00	12	.....
Pope.....Golconda	.....	66	-9	29.9	75	57	-5	.....	.....	.....	.....	.....	.....	NW., E. & NE.	5	8	1.67	17	.....

REMARKS FOR DECEMBER.

DURAND—C. A. Starr, observer. Mirage on the 30th.

BELVIDERE—G. B. Moss, observer. Exceedingly brilliant and colored solar halo on the 31st. Mean temperature 14 Decembers, 21°.71, 1876 being the coldest, 11°.27, and 1877 the warmest, 39°.22. Mean precipitation of 13 years, 1.88 inch, 1874 being the dryest, 0.41 inch, and 1873 the wettest, 4.03 inches. Average coldest day in 14 Decembers, —17°.16, December 21, 1872, being 1°.16 colder than December 28, 1880. Mean temperature of the year 1880, 47°.52; mean of 13 years, 46°.25, 1878 being the warmest, 49°.15, and 1875 the coldest, 42°.02; maximum temperature of 1880 (not excelled in 13 years) 100°, on August 18, and minimum —20°, December 29th, a range of 120°; lowest point in 13 years, —32°, 7 A. M., February 10, 1868; on February 7 and 9, 1875, —31°. Mean of hottest day, 1880, 85°.20, on August 18; of coldest, —16°, December 28. Precipitation of year 1880, 43.59 inches; average of 13 years, 34.93 inches, 1872 being the dryest, 24.66 inches, and 1876 the wettest, 44.94 inches. Direction of the wind during the year 1880 (the figures denoting the number of times in each direction: north, 87; northeast, 101; east, 78; southeast, 100; south, 181; southwest, 245; west, 80; northwest, 177; calm, 49; total, 1,098—three observations each day. Precipitation was 0.01 inch or more on 78 days; number wholly clear days, 12; wholly cloudy days, 38; 11 occurring in December.

MARENGO—John W. James, observer. Frost every day during the month. Solar halos on the 28th and 29th; lunar halos on the 11th and 13th; mean temperature of December, 1880, 6°.2 below the usual mean, and its precipitation 1.20 inch less. In 18 years last past, only December, 1872 and 1876, were colder, and only December, 1865, 1874 and 1876 were dryer. From the 19th to the 26th, cloudy and misty weather, the longest spell ever noted at this time of the year. The mean temperature of the year 1880 was 46°.7, or 1°.3 higher than usual, and its total precipitation, 33.29 inches, was 0.07 inch more than usual. The year 1863 had the same mean temperature, but only 1870, 1877 and 1878 were warmer. Highest temperature during the year, 96°, on August 18, and the lowest, —32°, on December 29, a range of 118°. Rain on 98 days; snow on 16 days. Wind (number of times), north, 98; northeast, 107; east, 85; southeast, 79; south, 166; southwest, 219; west, 137; northwest, 184; calm, 38.

CHICAGO—James Mitchell, U. S. A., observer. Frost every day except December 4, 13 and 14. Highest temperature 50°, on the 5th, and lowest, —15°, on the 29th, a range of 65° for the month. Greatest daily range, 38°, on the 27th; average mean temperature of 8 Decembers, 30°.4, 1876 being the coldest, 19°.9, and 1877 the warmest, 43°.1. Average precipitation of 8 Decembers, 2.12 inches; 1876 was the dryest, 0.48 inch, and 1873 the wettest, 4.44 inches. Wind from the north four days; northeast, 2; east, 1; southeast, 1; south, 3; southwest, 4; west, 13, and northwest 3 days. Highest velocity, 32 miles per hour, from the west, on the 5th; total movement for the month, 6,319 miles.

MORRISON—S. A. Maxwell, observer. Thunder storm on the 4th. Brilliant solar halo (double) on the 29th. Average temperature of six Decembers, 25°.37; 1877 was the highest, 40°.50, and 1876 the lowest, 14°.45. Lowest temperature in six Decembers, —26°, in 1876.

ELMIRA—O. A. Blanchard, observer. Mean temperature at 9 P. M., 0°.54 warmer than at 7 A. M. Parhelia 3:15 P. M. on the 6th, 4:25 P. M. on the 27th, 8:25 A. M. on the 29th, and at sunrise on the 30th.

PEORIA—Fred. Brendel, observer. Frost every day except on the 4th and 12th. Lunar halo on the 11th.

CANTON—N. S. Wright, observer. Solar halo on the 29th and 30th. On the morning of the 29th, bright circle around the sun, with sun dogs on each side, above and below it. Mean temperature of December, 1876, 16°.33, being the coldest, by my record, since 1856, and the coldest January was in 1856, 9°.33.

SPRINGFIELD—T. B. Jennings, U. S. A., observer. Solar halos on the 7th, 13th, 29th, 30th and 31st. Mean temperature of the month, 5° 5 below December, 1879, and the precipitation 1.78 inch less. There were 9 clear and 8 fair days. The highest velocity of wind 36 miles, and the total movement 7,020 miles.

CENTRALIA—J. L. Hallam, observer. Thunder storm on the 4th; frost every day except December 1, 2; 4, 12, 13 and 15. Mock suns on the 10th, also on the 29th, which was the coldest day here since January 1, 1864. Great scarcity of water in wells.

UPPER ALTON—W. Leverett, observer. Thunder showers on the 4th and 16th. Solar halo and two very bright false suns on the 29th; lunar halo on the 14th. Heavy wind on the 4th, velocity 40 miles per hour. Six inches of snow fell on the 20th; snow 4 inches deep at close of the month.

GOLCONDA—J. E. Y. Hanna, observer. Thunder showers on the 4th and 17th. Earthquake of 15 seconds' duration, at 11:20 P. M. on the 17th. Snow 3½ inches deep at close of the month.

Stations.	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Wind. Prevailing	Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain or snow fell	Total rainfall or melted snow	Depth of snow at close of month	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction	M's	No.	Inch.	Inch	No.	Deg.
Northern Division.																			
January .....5 Stations	48	-4	27	52	37	2	29.00	29.00	.....	.....	.....	.....	N.	15	6	0.40	.....	16	.....
February .....4 "	56	9	33	47	45	19	30.00	29.00	.....	.....	.....	.....	N.	4	8	1.11	.....	16	.....
March .....4 "	72	26	45	46	62	31	30.03	29.13	29.65	0.90	29.90	29.16	S.	3	7	2.44	.....	15	76.
April .....5 "	79	34	53	45	67	43	29.78	29.22	29.63	0.56	29.99	29.22	NE.	6	11	3.72	.....	11	78.
May .....5 "	79	38	57	41	69	45	29.26	28.69	29.00	0.57	29.18	28.71	NW.	1	11	4.33	.....	15	90.5
June .....5 "	90	51	67	39	79	52	29.41	28.88	29.19	0.53	29.40	28.90	S.	15	12	3.41	.....	11	.....
July .....7 "	97	60	76	37	88	65	29.65	29.09	29.48	0.56	29.63	29.63	NE.	1	8	3.12	.....	7	89.8
August.....5 "	90	56	74	34	80	65	29.31	29.00	29.15	0.31	29.30	29.03	SW.	3	9	4.96	.....	5	.....
September .....4 "	88	39	64	49	78	51	29.59	28.75	29.29	0.84	29.52	28.93	S.	4	6	1.43	.....	4	.....
October.....6 "	79	19	48	60	68	25	29.51	28.78	.....	0.73	29.49	28.85	S. SW.	4	10	3.78	.....	2	.....
November .....6 "	57	22	38	35	47	30	29.59	28.82	29.22	0.77	29.55	28.86	NW.	3	5	0.93	.....	10	.....
December .....6 "	40	-16	17	54	36	-5	29.70	28.70	29.40	1.00	29.66	28.70	NW.	3	8	1.72	.....	14	.....
Average, 1878.....	73	28	49	45	63	35	29.57	28.92	29.33	0.65	29.56	28.99	NW.	5	8	2.61	.....	11	83.5
Central Division.																			
January .....5 Stations	55	-1	29	56	40	9	30.00	29.00	.....	.....	.....	.....	W.	6	6	0.91	.....	15	.....
February .....6 "	61	12	37	49	50	24	30.00	28.00	29.00	.....	.....	.....	NW.	4	11	2.77	.....	15	.....
March .....6 "	75	28	48	47	63	37	29.89	29.00	29.55	0.89	29.85	29.08	S.	5	12	3.72	.....	11	76.
April .....4 "	80	37	58	43	71	37	29.68	28.89	29.41	0.79	29.64	29.00	W.	6	14	3.63	.....	13	66.
May .....6 "	82	39	58	43	72	45	29.67	29.07	29.90	0.60	29.82	29.27	W.	6	14	5.69	.....	15	.....
June .....6 "	89	53	68	36	80	55	29.59	29.23	29.37	0.36	29.57	29.13	NW.	7	13	3.69	.....	9	.....
July.....5 "	99	63	80	36	89	67	29.81	29.13	29.62	0.68	29.77	29.30	S. SW.	4	6	2.72	.....	9	65.5
August.....5 "	96	59	77	37	83	67	29.73	29.45	29.56	0.28	29.71	29.47	SW.	4	9	6.03	.....	5	.....
September .....5 "	91	43	67	48	79	53	30.04	29.35	29.69	0.69	30.02	29.41	S.	5	6	1.57	.....	6	69.
October.....4 "	82	22	51	60	73	28	30.04	29.13	29.65	0.91	30.01	29.27	S.	4	10	3.20	.....	11	68.

Meteorological Observations—Continued.

Stations.	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Wind. Prevailing	Maximum velocity or force—miles per hour	Rain and Snow. Days on which rain fell	Total rainfall or melted snow	Depth of snow at close of month	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	Inch	No.	Deg.
November.....4 Stations	64	20	40	44	54	30	30.08	29.23	29.66	0.85	30.02	29.32	NW.	4	5	1.04	.....	9	75.
December.....4 "	50	-17	20	67	41	-5	30.24	29.13	29.74	1.11	30.19	29.21	W.	5	9	1.73	.....	18	79.
Average, 1878.....	77	30	52	47	66	37	29.89	29.05	29.56	0.84	29.66	29.24	SW.	5	9	3.05	.....	11	71.2
Southern Division.																			
January ..... 2 Stations	55	2	36	53	47	12	30.00	29.00	29.50	.....	.....	.....	N.	4	7	3.08	.....	15	.....
February ..... 2 "	64	22	37	42	51	28	30.00	29.00	29.50	.....	.....	.....	W.	4	7	2.75	.....	15	.....
March ..... 2 "	81	32	53	49	67	41	30.36	29.54	30.00	0.82	30.30	29.60	NW. S.	5	6	2.00	.....	5	.....
April ..... 2 "	80	42	60	38	73	51	30.12	29.38	29.79	0.74	30.03	29.49	S.	.....	10	5.20	.....	14	61.
May ..... 6 "	87	42	65	45	77	49	30.09	29.52	29.81	0.57	29.98	29.58	S.	10	11	6.01	.....	15	58.
June ..... 5 "	92	56	72	36	83	59	29.90	29.34	29.67	0.56	29.87	29.40	SW.	8	8	2.29	.....	17	69.2
July.....10 "	99	64	82	35	90	71	29.84	29.35	29.62	0.49	29.79	29.37	SW.	4	7	2.93	.....	13	72.0
August ..... 9 "	98	65	81	33	88	71	29.70	29.39	29.53	0.31	29.68	29.42	SW.	3	7	2.61	.....	11	70.3
September ..... 8 "	93	47	71	46	81	57	29.88	29.42	29.65	0.46	29.85	29.45	SW.	5	6	3.05	.....	8	70.
October..... 8 "	87	27	57	60	76	35	30.00	29.40	29.68	0.60	30.01	29.43	SW.	5	9	4.51	.....	10	.....
November..... 8 "	69	29	46	40	57	36	30.01	29.07	29.63	0.94	29.94	29.33	N. NW.	4	7	2.74	.....	13	.....
December ..... 7 "	56	-6	28	69	49	-7	30.24	29.38	29.83	0.86	30.22	29.57	NW.	5	11	3.97	.....	16	.....
Average, 1878.....	80	35	57	45	69	42	30.01	29.31	29.68	0.70	29.96	29.46	SW.	5	8	3.43	.....	12	66.7
State average, 1878.....	76	31	52	45	62	38	29.82	29.09	29.52	0.73	29.72	29.23	SW.	5	8	3.03	.....	11	73.8

Stations.	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Wind. Prevailing	Maximum velocity or force—miles per hour.	Rain and Snow. Days on which rain fell	Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
Northern Division.																		
January.....7 Stations.....	56	13	35	43	49	21	30.12	28.95	29.59	1.17	30.06	29.10	S-SE.	4	9	3.36	10	74.4
February.....7 "	60	1	30	59	49	13	30.35	28.96	29.60	1.39	30.30	29.66	NW., SW., W.	5	7	2.05	5	62.3
March.....6 "	59	8.05	33	50	48	16	29.70	28.22	29.23	1.48	29.63	28.39	S-SW.	4	7	2.44	7	.....
April.....5 "	80	24.05	49	55.5	65	33	29.97	28.88	29.51	1.09	29.93	29.14	SW.	6	12	4.29	8	62.9
May.....5 "	88	39	65	49	77	52	30.01	29.06	29.54	0.95	29.95	29.21	SW.	5	8	4.45	6	65.
June.....6 "	90	51	70	39	82	58	30.31	29.28	29.97	1.03	30.27	29.52	SW	5	12	5.32	6	67.7
July.....5 "	94	52	72	42	84	59	30.20	29.78	29.99	0.42	30.14	29.85	S-SW.	4	12	4.13	5	72.2
August.....7 "	96	51	72	45	83	61	30.28	29.74	30.06	0.54	30.24	29.77	NE-SW.	4	7	5.02	7	70.6
September.....6 "	86	35	60	51	75	46	30.17	29.67	30.04	0.50	30.27	29.86	SW.	4	8	5.14	5	66.9
October.....5 "	77	25	47	52	66	32	30.45	29.39	30.06	1.06	30.40	29.44	SW.	6	6	1.82	7	64.9
November.....7 "	61	-5.5	26	66.5	53	3.4	30.68	29.46	30.17	1.22	30.64	29.59	NW-SW.	5	7	1.29	9	65.7
December.....7 "	42	-18	18	60	38	-13	30.66	29.33	30.10	1.33	30.59	29.58	W-NW.	5	8	0.82	14	71.9
Average 1880.....	74	23	48	51	64	32	30.24	29.23	29.74	1.01	30.20	29.43	SW.	5	8	3.34	7	76.8
Average 1879.....	75	18	46	57	67	26	29.75	28.94	29.56	0.81	29.71	29.02	SW.	4	7	2.67	7	65.4
Average 1878.....	73	28	49	45	63	35	29.57	28.92	29.33	0.65	29.56	28.99	NW.	5	8	2.61	11	83.5
Central Division.																		
January.....6 Stations.....	63	19	41	44	54	26	30.39	29.33	29.88	1.06	30.29	29.45	S-SW.	5	10	2.82	15	75.4
February.....5 "	65	8	35	57	56	19	30.59	29.28	29.87	1.31	30.53	29.38	W., NW., SE.	5	8	2.82	9	65.9
March.....5 "	68	16	39	52	55	24	30.29	28.83	29.91	1.46	30.21	29.02	NW-SE.	6	10	2.5	10	63.9
April.....5 "	83	30	52	53	72	38	30.26	29.17	29.76	1.09	30.23	29.31	NW-SW-SSE.	5	10	4.29	10	57.6
May.....5 "	89	46	69	43	79	60	30.19	29.33	29.79	0.86	30.14	29.49	S-SE-SW.	5	10	5.94	8	62.5
June.....5 "	92	55	73	37	83	62	30.09	29.23	29.77	0.86	30.07	29.35	S-SW-SE.	5	10	2.64	12	66.1
July.....5 "	96	57	75	39	87	66	29.96	29.59	29.80	0.37	29.95	29.69	SW., NW., SE.	4	7	1.89	4	64.8
August.....6 "	99	55	77	44	88	63	29.90	29.40	29.66	0.50	29.85	29.46	S-SW.	4	7	3.92	8	63.3
September.....6 "	87	39	63	48	78	50	29.99	29.45	29.75	0.54	29.93	29.56	S-SW.	4	7	2.5	4	66.9
October.....6 "	80	23	50	57	70	35	30.11	29.17	29.75	0.94	30.07	29.30	S-SW.	5	5	1.62	9	65.1

Meteorological Observations—Continued.

Stations.	Thermometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	Barometer. Highest	Lowest	Mean	Range of	Highest mean daily	Lowest mean daily	*Winds. Prevailing	Maximum velocity or force—miles per hour.	Rain and Snow. Days on which rain fell	Total rainfall	No. of days on which cloudiness averaged 0.8 or more	Relative humidity
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inch	Inch	Inch	Inch	Inch	Inch	Direction.	M's.	No.	Inch.	No.	Deg.
November.....5 Stations	65	-2	29	67	53	5.7	30.46	29.22	29.94	1.24	30.40	29.30	W.,NW.,SW.	4	10	1.94	10	70.5
December.....4 "	50	-18	21	68	44	-10	30.36	28.02	29.81	1.34	30.20	29.22	NW.	5	8	0.82	12	76.
Average 1880	78	27	52	51	68	36	30.22	29.22	29.80	1.00	40.16	29.38	SW.	5	8	2.81	9	66.5
Average 1879	78	23	51	55	69	31	30.12	29.35	29.70	0.77	30.08	29.42	SW.	4	8	2.16	10	65.9
Average 1878	77	30	52	47	66	37	29.89	29.05	29.56	0.84	29.66	29.24	SW.	5	9	8.05	11	71.2
Southern Division.																		
January.....6 Stations	69	23	48	46	61	30	30.54	29.33	30.17	1.21	30.52	29.57	S-SW.	5	8	3.8	14	.....
February.....6 "	67	10	41	57	62	21	30.60	29.73	30.16	0.87	30.58	29.73	N.,NW.,SSW.	5	7	3.31	12	.....
March.....6 "	71	21	43	50	63	28	30.42	29.37	30.16	1.05	30.41	29.50	N.,NE.,SE.	6	8	3.88	16	.....
April.....6 "	85	30	57	55	78	39	30.39	29.67	30.07	0.72	30.39	29.76	N.,NW.,S.,SW	6	7	3.22	11	.....
May.....6 "	89	47	70	42	81	58	30.36	29.73	30.09	0.63	30.30	29.81	NE.,SE.,S.SW	5	8	5.21	10	.....
June.....6 "	94	58	73	36	82	64	30.27	29.76	30.08	0.51	30.24	29.80	S-SW.	5	9	3.63	11	.....
July.....6 "	96	59	77	37	86	69	30.21	29.85	30.10	0.36	30.21	29.91	SW.	4	7	4.55	9	.....
August.....4 "	99	57	76	42	88	62	30.27	29.97	30.13	0.30	30.26	29.97	S.,SE.,SW.	4	5	2.28	8	.....
September.....5 "	91	43	66	48	90	53	30.33	29.91	30.17	0.42	30.32	29.92	SW-NE.	4	6	3.56	12	.....
October.....6 "	81	30	54	51	71	36	30.51	29.76	30.20	0.75	30.50	29.86	SW-NE.	5	6	3.57	12	.....
November.....6 "	67	-4	33	71	56	8	30.63	29.67	30.25	0.96	30.61	29.71	NW.	5	8	3.55	15	.....
December.....5 "	60	-12	29	72	53	-6	30.66	29.64	30.21	1.02	30.64	29.77	NW.	4	7	2.18	19	.....
Average 1880	81	30	56	51	72	38	30.43	29.69	30.15	0.74	30.41	29.78	SW.	5	7	3.56	12	.....
Average 1879	82	29	55	53	71	36	30.62	29.74	30.19	0.88	30.44	29.81	SW.	5	7	3.45	11	68.2
Average 1878	80	35	57	45	69	42	30.01	29.31	29.68	0.70	29.96	29.46	SW.	5	8	3.43	12	66.7
State average 18 0	78	27	52	51	68	35	30.29	29.38	29.90	0.91	30.26	29.58	SW.	5	8	3.24	9	71.6

Month	Thermometer. Observations at 7 A. M. and 2 and 9 P. M. Deg.	Mean of month Deg.	Mean of seasons Deg.	March of temperature from month to mo. Deg.	Maximum temperature Date.	Maximum temperature Deg.	Minimum temperature Date.	Minimum temperature Deg.	Date.	Maxim'm daily mean temperature Deg.	Date.	Minimum daily mean temperature Deg.	Precipitation. Of month Ins.	Of season Ins.	Snowfall Ins.	Rainy days—over .01 inches No.	Cloudiness. Days wholly cl. No.	D'ys whl. cl'dy. No.	Days cl'dy ov'r 80 per cent No.	Sums of cloudiness	Means No.	Winds. Number times in each direction. North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm	Total	Prevailing
Jan.	*4179.6	33.71	.....	.....	11	55	15	10	3	46.95	28	16.95	3.63	.....	3.25	9	1	7	10	527	5.66	11	13	7	13	28	2	6	13	0	93	s
Feb.	3524.9	30.38	Win. 28.59	-3.33	26	59	4. 7	-3	24	47.35	1	10.47	1.24	Win. 6.99	1.80	5	3	3	6	340	3.91-	4	7	3	7	14	20	15	16	1	87	swnww
March.	3994.8	32.21	.....	† 1.83	30	58	141617	10	26	46.67	14	17.00	2.08	.....	2.70	6	2	4	5	379	4.07	8	19	3	12	15	17	7	12	0	93	ne sw s
April	5455.2	45.46	.....	†13.25	23	85	3	15	23	69.60	2	22.72	2.12	.....	5.75	5	0	2	4	300	3.33	11	23	3	10	7	11	2	20	3	90	ne-nw
May	8065.5	65.04	Spr. 48.99	†19.58	24	92	1	43	25	77.15	1	56.20	4.66	Spr. 8.86	None	5	0	1	3	316	3.39	2	2	18	5	25	24	3	12	2	93	s-sw
June	8479.0	70.66	.....	† 5.62	12-24	91	1	54	11	81.70	1	59.47	6.51	.....	None	9	1	0	2	344	3.82	1	5	4	7	18	29	7	9	10	90	sw-s
July	8911.5	71.87	.....	† 1.21	13	95	19	54	12	84.00	19	57.20	6.21	.....	None	11	1	0	1	332	3.57	10	4	9	10	15	27	6	7	5	93	sw
Aug.	8964.2	72.29	Sum. 71.61	† 0.42	18	100	3	52	18	85.20	2	61.07	4.44	Sum. 17.16	None	8	1	3	5	336	3.61	7	13	9	7	8	31	1	13	4	93	sw
Sept.	7205.1	60.04	.....	-12.25	5	86	29	38	5	75.57	29	43.00	6.92	.....	None	6	0	0	3	290	3.22	5	7	5	8	13	14	9	14	15	90	nw sw s
Oct.	5822.7	46.95	.....	-13.09	10	81	18	22	10	68.80	18	26.75	2.19	.....	None	5	1	3	6	375	4.03	6	6	4	3	16	24	6	21	7	93	sw-nw.
Nov.	2941.7	24.51	A'tm. 43.32	-22.44	3	62	22	-10	4	53.35	21	-3.92	1.83	A'tm. 10.94	4.75	4	0	4	7	471	5.23	5	1	2	6	12	28	12	22	2	90	sw-nw
Dec.	2020.3	16.29	.....	- 8.22	4	40	29	-20	13	35.65	28	-16.00	1.76	.....	6.00	5	2	11	15	579	6.22	17	1	11	12	10	18	6	18	0	93	nw sw n
Sums	69564.5	569.41	192.51	.....	.....	904	.....	265	..	771.99	..	353.91	43.59	43.95	24.75	78	12	38	67	458.9	50.06	87	101	78	100	181	245	80	177	49	1,098	
Mean	47.52	47.45	48.12	.....	.....	75	.....	22	..	64.33	..	29.41	3.63	.....	.....	6.5	1	3	5.6-	4.18-	4.17†	7	8	6	8	15	20	7-	15-	4	.....	

Mean, 13 years, 46.25. Mean, 48.50. Mean, 46.87. Mean, 12 years, 34.93.

*Sums including 9 P. M. bls.

DIRECTIONS FOR PREPARING A HYGROMETER.

Take two thermometers, give them an equal exposure (that is, fasten them about six inches from each other), fasten a small cup under one of the thermometers about four inches below the bulb. Fasten a piece of cotton wicking around the bulb of the thermometer and extend the other end into the cup, which must be kept filled with water. This thermometer is technically called the "web-bulb thermometer." The other one is denominated the "dry-bulb thermometer." When the temperature is below freezing, remove the wicking; and a few minutes before each observation moisten the bulb of the wet-bulb thermometer, and take a reading when it ceases to fall.

EXPLANATION OF THE TABLE.

Find the temperature of the wet-bulb thermometer in the left-hand column, and the difference between this and the dry-bulb thermometer in the horizontal line at the top, and the number at the intersection of these two columns, will be the humidity sought. When there is no difference between the two thermometers, the relative humidity is 100 per cent., the air being saturated with moisture.

Wet-bulb thermometer.	Difference between Wet-bulb Thermometer and Temperature of Air.					
	Relative humidity.					
	0.	0.5	1.0	1.5	2.	2.5
—31	100	36.0				
—30	100	39.6				
—29	100	42.9				
—28	100	46.1				
—27	100	49.0				
—26	100	51.8				
—25	100	54.4				
—24	100	56.8				
—23	100	59.0				
—22	100	61.0				
—21	100	62.6	26.9			
—20	100	64.2	30.3			
—19	100	65.9	33.5			
—18	100	67.5	36.6			
—17	100	69.0	39.5			
—16	100	70.4	42.3			
—15	100	71.8	44.9	19.4		
—14	100	73.0	47.4	23.0		
—13	100	74.3	49.8	26.4		
—12	100	75.4	51.9	29.5		
—11	100	76.5	53.9	32.5		
—10	100	77.5	55.7	35.3	15.6	
— 9	100	78.5	58.0	38.3	19.1	
— 8	100	79.4	59.4	40.6	22.5	
— 7	100	80.3	61.1	43.0	25.7	
— 6	100	81.1	62.7	45.4	28.4	12.9
— 5	100	81.2	64.5	47.6	31.7	16.4
— 4	100	82.5	65.8	49.8	34.5	19.8
— 3	100	83.2	67.1	51.7	36.9	22.6
— 2	100	83.9	68.3	53.5	39.3	25.8
— 1	100	84.5	69.5	55.3	41.6	28.6
0	100	85.0	71.2	57.0	43.8	31.3
+1	100	85.6	71.8	58.6	46.0	33.9
2	100	86.2	73.3	60.2	48.0	36.4
3	100	86.7	74.0	61.8	50.0	38.8
4	100	87.2	75.0	63.3	52.0	41.2
5	100	87.7	76.0	64.7	53.8	43.4
6	100	82.2	76.9	66.0	55.3	45.2
7	100	88.6	77.7	67.1	56.8	47.0
8	100	89.0	78.4	68.2	58.2	48.8
9	100	89.4	79.1	69.2	59.6	50.5

bulb thermometer.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°	21°	22°	23°	24°	25°
10°	79	61	44	28	13																				
15°	83	67	52	39	27	15	5																		
20°	85	72	60	48	38	28	19	11																	
25°	88	77	67	59	48	41	32	26	18	10															
30°	89	79	69	61	52	45	37	30	26	18	11	6													
35°	90	80	71	63	56	48	42	35	30	24	19	14	10	6											
40°	91	83	75	67	60	54	48	42	37	32	27	23	19	14	12	9	5								
45°	92	85	77	71	64	59	53	48	43	38	34	30	26	23	19	16	13	10	8	6	4	2			
50°	93	86	79	73	68	62	57	53	48	44	40	36	33	29	26	23	20	18	15	13	11	9	7	5	4
55°	93	87	81	76	70	66	61	57	52	48	45	41	38	35	32	29	26	24	20	19	17	15	13	11	9
60°	94	88	83	78	73	68	64	60	56	52	49	45	42	39	36	34	31	29	26	21	22	20	18	17	15
65°	94	90	84	79	75	71	67	63	59	56	52	49	46	43	40	38	35	33	31	29	27	25	23	21	20
70°	95	90	85	81	76	72	69	65	61	58	55	52	49	46	44	41	40	37	35	32	31	29	27	26	24
75°	95	90	86	82	78	74	70	67	64	61	58	55	52	49	47	45	42	40	38	36	34	32	30	29	27
80°	95	91	87	83	79	75	72	69	66	63	60	57	54	52	49	47	45	43	41	39	37	35	34	32	30
85°	96	91	88	84	80	76	73	70	67	64	62	59	56	54	52	50	47	45	43	41	40	38	36	35	33
90°	96	92	88	85	81	78	75	72	69	66	63	61	58	56	54	52	49	47	46	44	42	40	39	37	36
95°	96	92	89	85	82	79	76	73	70	68	65	62	60	58	56	53	51	49	48	46	44	42	41	39	38
100°	96	93	89	86	83	80	77	74	71	69	66	64	62	59	57	55	53	51	50	48	46	44	43	41	40

EXAMPLE: Dry-bulb thermometer reads 72°; wet-bulb thermometer reads 60°; difference between the two thermometers, 12°. Then find 60°—the temperature of the wet-bulb thermometer—in the left hand column, and run the finger out on the line of 60° to the right until you reach the column headed 12°—the difference between the two thermometers—and the figures at the intersection, 45, indicate that the relative humidity is 45 per ct.

ILLINOIS CROPS.

COST OF PRODUCTION.

CORN.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Laying off	Planting	Seed	Tending	Gathering	Cutting	Shelling	Marketing	Total cost
Adams	$4 00	$1 00	$0 20	$0 10	$0 15	$0 10	$1 35	$1 35	$1 00	$1 00	$1 50	$11 [illegible]
Alexander	3 00	1 00	20	20	25	10	1 35	1 30	1 00	1 00	2 50	11 [illegible]
Bond	2 20	1 05	30	20	25	10	1 45	1 05	75	1 70	1 35	10 [illegible]
Boone	3 60	1 00	20	10	30	15	1 30	1 60	1 00	1 75	1 05	12 [illegible]
Brown	2 75	1 00	25	20	25	10	1 65	1 20	1 00	1 00	85	10 [illegible]
Bureau	4 00	1 25	20	10	30	10	1 25	1 05	.....	1 25	1 75	11 [illegible]
Calhoun	4 50	1 15	25	15	25	20	1 85	1 00	.....	1 00	3 00	13 [illegible]
Carroll	3 75	1 00	30	10	35	10	1 50	1 50	.....	95	1 75	11 [illegible]
Cass	4 40	95	20	10	2[illegible]	05	95	1 25	.....	75	1 00	9 [illegible]
Champaign	2 90	1 10	25	10	30	15	1 65	1 75	.....	1 20	1 50	10 [illegible]
Christian	3 00	90	20	10	20	05	95	1 25	.....	1 35	1 30	9 [illegible]
Clark	2 25	1 00	25	20	30	10	1 20	1 20	.....	1 10	2 00	9 [illegible]
Clay	2 35	1 00	30	20	40	10	1 55	90	.....	1 60	2 00	10 [illegible]
Clinton	3 00	1 00	25	15	25	10	1 75	85	75	1 50	00	10 [illegible]
Coles	3 25	1 00	25	15	25	10	1 35	1 30	.....	1 25	1 25	10 [illegible]
Cook	3 50	1 25	25	15	30	10	1 65	1 15	75	.....	1 00	10 [illegible]
Crawford	2 00	1 00	25	15	20	05	1 85	1 10	1 00	80	1 15	9 [illegible]
Cumberland	2 15	85	20	10	25	05	1 45	1 10	.....	.....	2 00	8 [illegible]
DeKalb	3 75	1 00	30	10	25	15	1 25	1 90	.....	1 30	80	10 [illegible]
DeWitt	3 00	1 00	15	10	25	10	1 25	1 00	.....	70	90	8 [illegible]
Douglas	3 25	1 05	20	10	20	05	1 60	1 25	1 00	1 00	75	10 [illegible]
DuPage	3 35	1 30	30	15	35	20	2 35	1 50	75	80	2 00	13 [illegible]
Edgar	3 25	80	20	15	20	10	1 50	1 30	.....	.....	1 05	8 [illegible]
Edwards	2 55	1 20	25	20	25	10	1 10	1 35	.....	.....	2 00	9 [illegible]
Effingham	2 50	1 00	25	15	35	10	2 00	1 75	.....	1 35	1 85	11 [illegible]
Fayette	2 50	1 00	30	15	25	05	1 20	1 20	1 00	1 10	1 35	10 [illegible]
Ford	2 75	1 10	30	10	20	05	1 35	1 45	.....	85	1 20	9 [illegible]
Franklin	2 00	90	25	20	25	05	1 35	95	.....	1 50	1 00	8 [illegible]
Fulton	3 50	1 00	15	10	20	10	2 00	1 50	.....	.....	2 00	10 [illegible]
Gallatin	2 85	1 15	20	20	30	05	2 20	1 30	.....	80	1 75	10 [illegible]
Greene	4 00	85	15	10	30	05	1 75	1 25	1 25	2 50	1 25	13 [illegible]
Grundy	3 75	1 00	20	15	20	10	1 20	1 10	.....	70	1 50	9 [illegible]
Hamilton	2 10	1 00	25	25	50	10	1 60	75	75	.....	1 20	8 [illegible]
Hancock	2 50	1 10	25	15	35	10	1 50	1 50	.....	75	1 25	9 [illegible]
Hardin	3 00	1 00	20	25	35	10	2 00	1 15	.....	1 00	00	9 [illegible]
Henderson	3 75	90	10	10	30	05	1 10	1 22	.....	80	1 05	9 [illegible]
Henry	4 50	1 10	15	10	25	15	1 80	1 40	.....	1 10	1 25	11 [illegible]
Iroquois	2 50	95	15	10	25	05	2 10	1 00	.....	75	55	8 [illegible]
Jackson	2 75	1 10	30	25	45	15	1 85	1 75	1 00	2 00	1 75	13 [illegible]
Jasper	1 75	1 00	20	10	20	10	1 35	1 00	50	60	2 00	8 [illegible]
Jefferson	2 00	1 00	30	20	25	10	1 25	1 00	85	1 50	1 20	9 [illegible]
Jersey	3 50	1 00	20	15	20	10	1 60	2 00	.....	1 50	1 05	11 [illegible]
JoDaviess	4 50	95	25	10	20	15	1 60	1 90	.....	1 20	2 00	12 [illegible]
Johnson	2 50	85	15	20	20	05	1 50	85	.....	1 00	1 25	8 [illegible]
Kane	4 50	1 35	40	10	35	30	1 90	1 60	.....	1 10	2 00	13 [illegible]

Corn—Continued.

unties.	Use of land	Plowing	Harrowing	Laying off	Planting	Seed	Tending	Gathering	Cutting	Shelling	Marketing	Total cost
se	$3 00	$1 00	$0 35	$0 10	$0 30	$0 10	$1 35	$1 00	.....	$1 10	$1 00	$9 30
	4 00	1 30	40	10	35	15	1 05	1 25	.....	90	1 30	10 80
	4 00	90	20	10	25	10	1 60	1 20	$1 25	1 10	1 00	11 70
	3 00	1 20	20	15	30	15	1 75	2 35	85	1 40	2 00	13 35
	4 00	1 00	25	10	25	10	1 60	1 60	.....	85	1 10	11 25
e	3 00	1 00	25	25	15	10	1 20	1 20	1 20	80	1 50	10 65
	3 75	1 00	30	15	30	10	1 30	1 30	.....	1 00	1 00	10 20
on	3 00	1 20	20	10	30	05	95	1 10	1 25	85	1 10	10 10
	3 40	1 05	25	10	30	05	1 15	1 40	.....	70	85	9 25
	3 00	1 00	20	15	30	10	1 05	1 35	1 75	95	1 10	10 95
in	3 00	1 00	20	.....	30	10	1 30	1 50	.....	1 30	1 50	10 20
	3 85	1 20	25	15	25	05	1 20	1 20	1 35	1 25	1 75	12 50
	2 00	1 00	45	15	20	05	95	1 25	75	80	1 35	8 95
l	4 10	1 10	20	1	20	10	1 40	1 60	.....	75	1 25	10 80
	3 50	1 00	20	10	25	05	1 20	1 00	.....	45	75	8 50
	4 00	1 15	25	15	15	05	3 00	1 00	.....	1 75	3 00	14 50
ugh	3 50	1 00	20	10	25	10	1 75	1 05	1 00	1 25	1 00	11 20
y	3 00	1 20	30	15	25	10	1 85	1 65	1 00	1 20	80	11 50
	3 00	1 00	20	10	20	10	1 85	1 20	.....	90	95	9 50
	3 50	1 00	20	10	25	05	1 50	1 10	1 00	90	1 05	10 65
	3 60	1 00	20	20	30	10	1 60	1 50	.....	1 00	1 50	11 00
	4 00	1 25	20	30	30	10	1 50	2 00	30	1 25	2 50	13 70
mery	2 50	90	35	10	30	10	1 10	1 25	.....	1 00	1 50	9 10
	4 00	1 00	15	10	20	10	1 35	1 25	.....	1 50	1 00	10 65
	2 65	1 00	20	10	20	05	1 50	1 25	75	80	1 00	9 50
	3 50	1 00	30	10	30	15	1 20	1 30	.....	95	75	9 55
	4 50	1 05	20	10	25	15	1 35	1 35	.....	60	1 50	11 05
	2 50	1 00	20	15	20	10	1 35	90	.....	.....	1 75	8 15
y	3 25	1 25	20	15	25	10	1 35	1 40	.....	60	1 65	10 20
	4 00	1 00	35	20	35	10	1 85	1 05	.....	1 00	2 00	11 90
	4 00	1 00	20	15	25	05	1 60	1 25	.....	1 15	1 05	10 70
	3 00	1 75	50	50	20	20	2 00	1 00	.....	1 75	1 75	12 65
	4 00	1 00	20	10	20	10	1 20	1 10	.....	75	1 50	10 15
h	3 60	1 00	20	25	35	10	1 20	1 50	.....	1 00	1 10	10 30
d	2 50	1 00	30	10	20	10	1 50	1 10	.....	1 05	1 50	9 45
land	3 65	1 30	35	15	30	10	1 85	2 00	.....	1 15	1 50	12 35
	2 00	85	35	25	40	10	2 00	95	.....	75	75	8 40
ion	3 50	1 10	20	15	30	10	1 15	1 50	1 00	1 00	1 50	11 50
r	3 00	1 10	25	10	25	05	1 50	1 05	.....	1 50	2 00	10 80
	3 75	1 00	30	10	20	05	1 50	1 00	.....	1 45	1 25	10 60
	3 00	1 25	20	10	30	05	1 70	1 20	1 20	75	1 25	11 00
	4 00	95	25	10	30	15	1 75	1 50	.....	90	1 00	10 90
r	4 80	1 20	45	10	30	10	2 50	1 20	1 20	1 40	2 00	15 25
nson	3 65	95	25	10	25	10	1 05	1 75	.....	1 00	90	10 00
ll	3 75	1 00	35	20	25	10	1 00	1 20	.....	65	70	9 20
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
on	2 85	90	15	10	20	05	1 50	1 15	75	80	1 20	9 65
	3 25	1 15	35	25	30	05	1 70	1 40	.....	1 50	1 00	10 95
	3 50	1 00	25	15	30	10	1 45	1 40	2 50	1 00	1 40	13 05
gton	2 50	85	20	10	25	05	1 00	75	1 25	1 05	1 15	9 15
	2 00	1 00	30	20	30	10	1 30	1 00	.....	85	1 40	8 45
	3 00	1 00	25	25	30	05	1 50	1 20	.....	1 50	90	9 95
de	4 00	1 00	15	10	30	15	1 30	1 25	.....	1 00	1 00	10 25
	3 50	1 25	20	10	20	10	1 25	1 70	.....	1 25	1 50	11 05
ison	2 00	1 00	20	25	30	05	1 50	1 20	.....	1 60	1 50	9 60
ago	3 50	1 00	20	15	30	10	1 70	1 30	.....	1 05	75	10 05
rd	3 50	1 00	25	15	20	10	1 45	1 25	.....	95	1 25	10 10

WHEAT.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
Adams	$4 00	$1 00	$0 20	$0 20	$1 09	$0 90	$1 00	$0 50	$1 15	$0 90	$10 85
Alexander	3 00	1 25	25	40	1 10	95	55	75	2 35	2 00	12 60
Bond	2 40	1 10	50	25	1 05	80	65	60	1 65	1 45	10 45
Boone	3 50	1 00	20	25	1 75	85	1 00	65	1 35	85	11 40
Brown	2 75	95	25	75	1 25	75	1 00	60	1 50	80	10 60
Bureau	4 00	1 05	30	10	2 00	60	55	40	55	45	10 00
Calhoun	4 50	1 00	20	35	1 30	85	1 50	65	1 15	1 50	13 00
Carroll	3 75	1 00	25	20	1 90	35	1 50	50	1 00	1 30	11 75
Cass	4 00	1 00	25	20	1 25	75	1 00	85	1 35	60	11 25
Champaign	2 90	1 10	35	35	1 30	85	75	70	1 80	1 15	11 25
Christian	3 00	95	35	25	1 00	55	90	60	2 00	1 35	10 95
Clark	2 25	1 00	35	40	1 20	80	1 00	45	1 50	80	9 75
Clay	2 35	1 05	40	35	1 15	65	95	60	1 85	1 10	10 45
Clinton	3 50	1 00	30	30	1 40	70	75	50	1 75	1 25	11 45
Coles	3 2	1 00	25	25	1 15	75	75	85	1 35	60	10 20
Cook	3 50	1 35	25	.....	1 30	80	95	65	80	55	10 50
Crawford	2 65	1 25	35	25	1 15	60	85	35	1 00	60	9 85
Cumberland	2 00	85	30	40	1 45	65	65	50	1 45	55	8 80
DeKalb	3 95	1 00	25	15	1 85	75	90	45	1 95	25	11 30
DeWitt	3 00	1 00	15	20	1 50	75	85	65	90	45	8 95
Douglas	3 25	1 05	25	25	1 10	65	70	50	1 15	45	10 85
DuPage	3 00	1 25	50	25	1 50	50	1 00	75	1 50	2 00	12 25
Edgar	3 25	80	20	25	1 30	75	60	45	1 25	45	9 30
Edwards	2 80	1 25	25	50	1 25	60	55	55	1 40	1 75	10 90
Effingham	2 40	1 00	30	50	1 50	70	75	50	1 85	60	10 65
Fayette	2 50	1 00	45	25	1 25	75	50	45	1 00	60	8 15
Ford	2 85	1 00	25	15	1 65	70	40	35	1 50	50	9 35
Franklin	2 00	90	50	40	1 00	60	50	50	1 25	1 00	8 25
Fulton	3 50	1 00	15	25	1 50	65	70	50	2 00	50	9 65
Gallatin	2 85	1 45	30	30	1 00	60	95	70	1 25	75	10 15
Greene	4 00	85	55	20	1 15	50	1 25	90	1 25	60	11 25
Grundy	3 75	1 25	15	20	1 25	60	1 00	55	1 25	1 00	10 70
Hamilton	2 00	1 10	25	40	1 15	50	60	35	2 00	60	8 95
Hancock	3 00	1 25	40	40	1 50	60	75	60	1 60	1 00	11 40
Hardin	3 00	1 30	30	50	1 00	75	60	55	1 05	40	9 65
Henderson	3 75	1 00	20	10	1 40	70	70	50	90	45	9 70
Henry	4 50	1 00	20	10	1 65	1 00	1 00	40	1 25	40	12 10
Iroquois	2 50	1 00	15	30	1 45	60	75	45	1 60	45	9 25
Jackson	2 75	1 00	45	45	1 00	75	80	50	1 30	65	9 85
Jasper	1 50	1 00	25	25	1 20	50	50	40	1 50	65	6 80
Jefferson	2 00	1 00	25	30	1 25	70	65	60	1 50	1 05	9 65
Jersey	4 00	1 00	50	25	1 05	75	95	1 05	1 60	80	11 90
JoDaviess	4 50	95	30	25	1 60	55	85	70	1 30	1 20	12 20
Johnson	2 50	85	25	30	1 00	50	50	40	50	70	7 50
Kane	4 50	1 35	40	60	2 00	60	80	65	1 65	1 50	14 05
Kankakee	3 00	1 10	35	20	1 45	65	80	55	1 45	55	10 05
Kendall	4 00	1 25	35	20	1 75	75	1 10	85	1 40	65	12 05
Knox	4 00	1 00	35	10	1 30	75	75	40	1 85	35	11 30
Lake	3 00	1 20	20	20	2 55	85	80	55	1 30	75	10 90
LaSalle	4 00	1 00	35	20	1 60	70	90	60	1 30	50	10 90
Lawrence	5 50	1 00	30	25	1 35	70	70	70	1 50	1 00	12 70
Lee	5 50	1 00	35	20	1 85	65	75	65	1 50	55	11 25
Livingston	3 00	1 20	20	30	1 50	55	50	60	1 70	1 70	11 25
Logan	3 40	1 00	25	35	1 35	85	65	60	1 20	65	10 30
Macon	3 00	95	20	35	1 15	80	70	60	1 50	60	9 85
Macoupin	3 50	1 00	45	20	1 20	75	75	70	1 60	1 25	11 40
Madison	3 90	1 20	35	25	1 35	65	65	60	1 80	90	11 65
Marion	2 00	1 00	50	20	1 35	70	60	50	1 40	50	8 75
Marshall	4 10	1 10	15	.....	1 30	50	60	30	1 60	1 00	10 65

Wheat—Continued.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
.....	$3 50	$1 10	$0 25	$0 30	$1 20	$0 75	$0 65	$0 75	$0 95	$0 55	$10 00
.....	4 00	1 15	25	40	1 00	60	60	25	50	3 00	11 75
ough.....	3 50	1 00	25	20	1 35	75	60	45	1 50	50	10 10
ry.....	3 00	1 25	35	15	1 60	75	75	65	1 20	1 00	10 70
.....	3 00	1 00	25	20	1 50	75	85	40	1 85	60	10 40
.....	3 50	1 00	20	35	1 00	80	85	70	1 45	45	10 30
.....	3 60	95	35	15	1 55	80	80	35	1 25	40	10 20
.....	5 00	1 75	25	30	1 00	75	75	75	1 10	2 30	13 95
mery.....	2 50	1 00	55	50	1 15	75	60	85	1 50	50	9 90
.....	4 00	1 00	30	25	1 30	75	75	1 30	1 25	60	11 50
e.....	2 50	1 00	25	25	1 20	70	1 30	65	1 50	40	9 75
.....	3 50	1 00	30	15	1 80	55	80	65	1 25	45	10 45
.....	4 50	1 05	30	20	1 55	75	60	25	1 20	60	11 00
.....	3 00	1 00	45	25	1 30	50	45	60	1 50	50	9 55
.....	3 25	1 25	40	30	1 20	85	1 00	60	1 25	55	10 65
.....	4 00	1 00	50	30	1 15	90	1 00	65	1 95	1 50	12 95
.....	3 35	1 00	20	40	1 00	50	65	40	1 00	75	9 25
.....	3 00	1 50	50	20	1 25	80	80	40	1 25	1 00	10 70
.....	4 00	80	20	10	1 25	55	65	40	1 25	65	9 85
ph.....	4 10	1 30	30	40	95	55	65	80	1 50	95	11 50
d.....	2 50	1 25	35	40	1 25	65	65	55	1 35	1 00	9 95
land	3 65	1 00	45	20	1 85	75	90	55	1 50	60	11 45
.....	2 00	85	20	30	1 25	50	50	35	1 25	50	7 70
son.....	3 50	1 10	50	40	1 25	85	1 00	75	1 75	50	11 60
er	3 00	1 20	25	20	1 50	55	75	45	80	1 30	10 00
.....	3 75	1 00	30	35	1 10	60	1 30	65	1 20	95	11 20
.....	3 00	1 25	20	15	1 20	70	1 25	60	1 60	1 00	10 95
.....	4 00	1 00	35	25	1 50	70	90	50	1 50	75	11 45
.....	5 00	2 25	80	25	1 00	60	1 00	1 00	1 50	85	14 25
ason.....	3 65	95	15	25	1 75	50	1 00	60	1 25	55	10 65
ll.....	3 75	1 00	25	35	1 15	50	75	65	1 75	70	10 85
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
on.....	2 75	90	15	40	1 25	1 00	85	80	1 25	80	10 15
.....	3 50	1 20	35	40	1 00	80	60	50	1 15	55	10 05
.....	3 50	1 00	25	15	1 40	70	90	60	1 60	55	10 65
gton	3 00	1 00	30	30	1 25	75	50	60	1 20	75	9 65
.....	2 50	1 25	50	40	1 35	70	70	55	1 00	65	9 60
.....	3 00	1 00	20	30	1 00	50	50	75	1 30	70	9 25
de	4 00	1 00	20	.....	1 50	75	50	35	1 50	35	10 15
.....	3 50	1 25	15	25	1 80	65	75	55	1 25	1 00	11 15
son	2 00	1 00	30	35	1 00	50	60	65	1 15	85	8 40
ago	3 50	1 00	20	15	1 80	60	90	50	1 45	65	10 75
rd.....	3 50	1 00	25	20	1 50	75	50	50	1 25	50	9 95

HAY.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Harrowing	Planting	Seed	Cutting	Stacking	Marketing	Total cost
Adams	$4 00	$0 20	$0 20	$0 30	$0 80	$0 75	$2 50	$8 [illegible]
Alexander	3 00	20	30	60	60	1 25	1 50	7 [illegible]
Bond	2 30	25	.....	75	70	70	1 50	6 [illegible]
Boone	3 50	.....	.....	.....	60	80	3 00	7 [illegible]
Brown	2 25	20	.....	50	65	85	1 00	5 [illegible]
Bureau	4 00	20	10	35	60	50	1 75	7 [illegible]
Calhoun	4 50	.....	.....	.....	85	2 00	1 85	9 [illegible]
Carroll	4 00	.....	.....	.....	25	50	1 50	6 [illegible]
Cass	3 40	40	25	75	80	1 20	3 35	10 [illegible]
Champaign	2 70	.....	.....	.....	65	90	1 50	5 [illegible]
Christian	2 75	25	.....	.....	50	1 40	2 10	7 [illegible]
Clark	2 25	.....	1 00	40	60	85	2 25	7 [illegible]
Clay	2 35	50	.....	15	60	1 00	1 75	6 [illegible]
Clinton	2 75	30	25	65	45	60	1 00	6 [illegible]
Coles	3 25	25	10	20	60	1 00	1 75	7 [illegible]
Cook	3 00	.....	.....	.....	60	65	3 35	7 [illegible]
Crawford	2 15	25	10	30	50	75	2 00	6 [illegible]
Cumberland	1 65	.....	.....	15	60	60	2 00	5 [illegible]
DeKalb	3 90	25	.....	50	50	85	1 50	7 [illegible]
DeWitt	3 00	.....	.....	.....	55	80	2 00	6 [illegible]
Douglas	3 50	20	20	30	50	55	1 00	6 [illegible]
DuPage	3 20	.....	.....	.....	50	75	6 00	10 [illegible]
Edgar	2 85	20	20	20	60	1 10	1 85	7 [illegible]
Edwards	3 00	50	.....	.....	85	85	2 00	7 [illegible]
Effingham	2 50	.....	.....	.....	50	85	2 25	6 [illegible]
Fayette	2 00	45	50	40	60	85	1 75	6 [illegible]
Ford	2 60	.....	.....	.....	60	80	1 30	5 [illegible]
Franklin	1 85	30	.....	40	60	60	1 50	5 [illegible]
Fulton	3 50	.....	.....	.....	50	1 10	2 50	7 [illegible]
Gallatin	3 35	30	10	55	60	1 75	2 75	9 [illegible]
Greene	5 00	.....	.....	.....	50	2 00	1 00	8 [illegible]
Grundy	3 50	.....	.....	.....	60	55	2 00	6 [illegible]
Hamilton	1 50	.....	.....	30	50	40	1 00	3 [illegible]
Hancock	2 75	.....	.....	50	65	85	2 00	6 [illegible]
Hardin	3 00	30	30	80	1 50	70	1 15	7 [illegible]
Henderson	3 85	.....	.....	.....	50	70	2 65	7 [illegible]
Henry	4 65	.....	.....	50	60	1 00	2 30	9 [illegible]
Iroquois	2 50	.....	30	35	60	50	1 85	6 [illegible]
Jackson	2 65	40	20	50	75	60	2 00	7 [illegible]
Jasper	1 50	45	20	45	50	55	2 00	5 [illegible]
Jefferson	2 00	30	20	0	60	60	1 35	5 [illegible]
Jersey	3 50	.....	10	25	50	1 00	3 50	8 [illegible]
JoDaviess	3 20	15	20	80	50	80	2 00	7 [illegible]
Johnson	2 50	15	.....	.....	40	1 00	3 00	7 [illegible]
Kane	3 50	.....	.....	.....	60	70	2 00	6 [illegible]
Kankakee	3 00	.....	.....	.....	50	75	1 35	5 [illegible]
Kendall	4 00	25	10	75	70	70	2 50	9 [illegible]
Knox	3 75	20	15	55	75	1 00	1 30	7 [illegible]
Lake	3 00	.....	.....	15	60	60	3 00	7 [illegible]
LaSalle	4 00	30	.....	75	60	50	2 50	8 [illegible]
Lawrence	2 65	25	20	80	60	75	1 35	6 [illegible]
Lee	3 35	.....	.....	20	50	1 35	2 35	7 [illegible]
Livingston	3 15	.....	.....	.....	75	60	2 50	7 [illegible]
Logan	3 15	.....	10	75	70	1 00	1 75	7 [illegible]
Macon	3 00	.....	.....	75	50	1 20	3 50	8 [illegible]
Macoupin	3 00	.....	.....	75	45	70	1 75	6 [illegible]
Madison	4 00	25	20	25	85	1 20	3 35	10 [illegible]
Marion	2 00	50	20	.....	65	50	75	4 [illegible]
Marshall	4 25	.....	.....	.....	75	1 50	5 00	11 [illegible]

Hay—Continued.

Counties.	Use of land	Harrowing	Planting	Seed	Cutting	Stacking	Marketing	Total cost
	$3 50	$0 25	$0 30	$0 75	$0 70	$0 75	$3 00	$9 25
	2 00	25	35	90	65	75	2 00	6 90
igh	3 50	.....	.....	.....	75	1 00	2 00	7 25
r	3 00	50	25	50	60	65	1 10	6 60
	3 00	40	10	50	60	65	2 25	7 50
	3 50	20	20	50	60	75	2 00	7 75
	3 50	.....	.....	.....	65	70	3 00	7 85
	4 00	.....	.....	.....	1 00	50	4 00	9 50
nery	2 50	.....	10	75	60	1 00	1 75	6 70
	4 00	.....	.....	.....	85	1 50	4 00	10 35
	2 95	.....	.....	.....	55	1 00	2 00	6 50
	3 25	.....	.....	50	60	90	2 25	7 50
	4 50	.....	.....	.....	50	1 35	2 50	8 85
	2 50	.....	.....	.....	70	95	2 00	6 15
	3 00	.....	.....	50	85	1 40	1 60	7 35
	4 00	.....	.....	.....	50	75	2 00	7 25
	3 00	25	35	75	40	45	1 50	6 70
	2 50	50	15	.....	75	1 50	2 00	7 40
	4 00	.....	.....	85	60	1 00	1 50	7 95
l	3 75	25	30	50	75	1 00	2 50	9 05
	2 35	.....	20	50	60	80	2 50	6 95
and	3 70	.....	.....	.....	60	1 00	2 80	8 10
	2 00	20	.....	1 00	60	1 00	1 35	6 15
n	4 25	.....	05	30	75	1 45	4 15	10 95
	3 00	.....	10	40	45	75	2 00	6 70
	3 50	.....	10	50	75	60	1 00	6 45
	2 50	25	15	45	65	75	3 00	7 75
	3 50	30	10	75	60	70	1 60	7 55
	5 00	25	.....	25	75	1 00	5 00	12 25
on	3 35	.....	.....	15	35	75	1 75	6 35
	3 50	25	25	65	50	85	1 70	7 70
	.....	.....	.....	.....	.....	.....	.....	.....
l	2 50	30	30	45	65	1 00	1 45	6 65
	2 75	.....	15	45	75	1 25	1 75	7 10
	3 00	10	05	15	70	90	2 35	7 25
ion	2 15	.....	10	40	60	60	2 00	5 85
	2 00	35	20	60	85	1 00	1 50	6 50
	2 50	15	15	40	75	1 00	1 35	6 30
e	4 00	.....	.....	.....	50	1 00	1 00	6 50
	3 50	.....	.....	.....	65	65	2 00	6 80
on	2 00	25	35	25	60	85	2 50	6 80
go	2 50	15	10	70	50	80	1 85	6 60
l	3 25	.....	.....	50	60	85	2 75	7 95

OATS.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
Adams	$4 00	$1 00	$0 20	$0 15	$0 55	$0 75	$0 50	$0 50	$0 80	$1 45	[illegible]
Alexander	2 00	1 00	20	25	75	45	50	80	1 65	75	[illegible]
Bond	2 10	85	40	25	50	75	55	70	1 35	85	[illegible]
Boone	3 50	1 00	20	25	90	85	1 00	75	1 85	60	[illegible]
Brown	2 75	85	25	40	55	70	1 00	70	1 25	1 00	[illegible]
Bureau	4 00	1 15	30	10	70	50	45	50	65	1 50	[illegible]
Calhoun	4 50	40	20	40	75	1 00	2 00	1 00	1 50	.....	11 75
Carroll	3 75	1 00	25	15	85	35	1 50	50	1 05	1 50	[illegible]
Cass	3 60	75	25	15	65	75	95	90	1 70	70	[illegible]
Champaign	2 90	1 10	25	40	60	80	75	80	1 55	95	[illegible]
Christian	2 50	85	15	15	45	50	90	1 40	1 80	1 05	[illegible]
Clark	2 25	75	35	25	40	65	85	40	80	75	[illegible]
Clay	2 00	1 00	30	25	50	60	95	1 00	1 60	85	[illegible]
Clinton	3 00	1 00	25	25	60	55	65	40	1 10	65	[illegible]
Coles	3 00	1 00	25	15	50	75	75	1 00	1 25	60	[illegible]
Cook	3 50	1 35	35	25	95	80	95	65	1 05	1 50	[illegible]
Crawford	2 15	1 00	20	15	60	50	50	30	60	50	[illegible]
Cumberland	1 85	1 00	25	30	60	60	60	45	1 85	30	[illegible]
DeKalb	3 50	1 00	25	15	90	70	75	45	2 75	50	[illegible]
DeWitt	3 00	1 00	20	20	55	75	85	1 05	1 00	60	[illegible]
Douglas	3 15	1 00	20	20	55	60	70	60	1 10	50	[illegible]
DuPage	3 35	1 30	45	40	90	55	75	70	1 45	1 75	[illegible]
Edgar	2 85	80	20	10	55	70	60	85	1 25	60	[illegible]
Edwards	2 55	1 15	30	60	80	55	40	55	80	1 50	[illegible]
Effingham	2 50	1 00	30	35	55	50	60	55	1 90	60	[illegible]
Fayette	2 00	1 00	30	15	55	60	55	55	95	75	[illegible]
Ford	2 75	1 10	35	10	70	65	60	45	95	85	[illegible]
Franklin	2 00	85	20	15	50	60	50	35	1 00	75	[illegible]
Fulton	3 50	1 00	20	10	65	60	1 35	40	1 25	1 00	[illegible]
Gallatin	3 35	1 25	35	50	80	60	1 20	65	1 20	65	[illegible]
Greene	5 00	1 00	1 00	.....	75	50	1 00	1 00	1 00	50	[illegible]
Grundy	3 75	1 00	25	15	85	60	1 00	55	1 00	1 65	[illegible]
Hamilton	1 50	1 00	25	20	60	50	60	35	1 15	65	[illegible]
Hancock	2 75	90	35	30	60	60	75	40	1 25	1 00	[illegible]
Hardin	3 00	1 00	25	25	35	75	50	60	1 00	50	[illegible]
Henderson	3 85	90	20	10	60	75	75	60	55	1 05	[illegible]
Henry	4 45	1 05	20	10	80	90	1 65	75	1 65	1 05	[illegible]
Iroquois	2 50	1 00	15	30	65	55	70	45	1 60	50	[illegible]
Jackson	2 65	1 00	45	20	75	75	45	35	1 70	95	[illegible]
Jasper	1 50	1 00	20	15	55	50	45	40	1 00	75	[illegible]
Jefferson	2 00	1 00	30	15	60	55	55	40	1 10	1 00	[illegible]
Jersey	3 00	1 00	25	15	60	75	60	60	1 20	1 00	[illegible]
JoDaviess	3 20	95	25	20	75	55	80	75	1 60	1 55	[illegible]
Johnson	2 50	85	15	.....	40	45	45	30	1 15	40	[illegible]
Kane	4 00	1 35	35	25	80	55	80	70	1 50	1 35	[illegible]
Kankakee	3 00	1 00	35	20	85	65	75	65	1 20	60	[illegible]
Kendall	4 00	1 00	35	20	90	55	85	60	1 25	1 45	[illegible]
Knox	4 00	1 00	25	10	60	75	75	60	1 50	90	[illegible]
Lake	3 00	1 20	25	15	90	60	75	55	1 70	1 15	[illegible]
LaSalle	4 00	1 00	30	15	80	70	90	50	95	75	[illegible]
Lawrence	2 15	1 00	25	15	60	50	75	55	1 30	2 00	[illegible]
Lee	3 35	1 00	40	.....	70	60	75	90	1 60	60	[illegible]
Livingston	3 15	95	45	35	75	70	55	55	1 40	95	[illegible]
Logan	3 20	85	25	10	75	95	90	80	1 05	60	[illegible]
Macon	3 00	1 00	20	20	60	75	60	65	1 65	60	[illegible]
Macoupin	3 00	1 00	25	20	65	70	55	65	1 30	75	[illegible]
Madison	3 85	1 15	25	10	45	75	50	50	1 35	1 45	[illegible]
Marion	2 00	1 00	45	15	50	70	60	45	60	50	[illegible]
Marshall	4 25	1 00	15	05	75	75	85	60	1 75	1 50	[illegible]

Oats—Continued.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
	$3 05	$0 90	$0 25	$0 20	$0 55	$0 75	$0 65	$0 75	$1 25	$0 60	$8 95
	4 00	1 00	25	35	30	80	80	35	50	2 00	10 35
ugh	3 50	1 00	30	20	75	70	65	50	1 50	80	9 90
y	3 00	1 10	35	15	65	60	65	80	1 35	1 00	9 65
	3 00	1 00	30	15	60	65	80	45	1 80	85	9 60
	3 50	1 00	20	15	75	85	85	65	1 35	55	9 85
	3 60	90	20	20	75	75	70	40	1 30	85	9 65
	4 00	1 00	20	25	1 00	80	75	75	1 60	1 75	12 10
nery	2 50	1 00	25	10	50	70	65	50	1 25	35	7 80
	4 00	75	20	15	80	75	75	1 30	1 50	60	10 80
	2 65	85	20	15	50	55	95	75	1 50	50	8 60
	3 50	1 00	25	15	75	55	85	75	1 30	75	9 85
	4 50	1 00	25	15	85	65	75	25	1 35	1 40	11 15
	3 00	1 00	25	10	75	50	60	50	1 60	1 00	9 30
	3 50	1 25	30	20	55	75	90	80	1 45	95	10 65
	4 00	1 00	35	25	80	60	75	1 00	2 25	1 75	12 75
	2 75	50	25	.....	50	50	50	45	1 00	75	7 20
	2 50	1 00	50	15	30	75	75	1 00	1 25	75	8 95
	4 00	75	20	25	75	50	65	1 00	1 50	85	10 45
h	3 00	1 05	20	30	95	80	60	60	1 85	75	10 10
l	2 15	1 00	30	20	50	60	65	55	1 35	1 00	8 30
and	3 70	1 05	40	20	80	75	90	65	1 60	75	10 80
	2 00	85	20	25	25	35	35	25	80	75	6 05
on	3 50	1 10	35	25	45	80	85	60	1 50	70	10 10
	3 00	1 20	30	20	65	55	70	40	85	1 50	9 35
	3 50	1 00	20	20	60	50	1 40	60	1 00	1 00	10 00
	2 50	1 25	30	20	50	70	1 00	80	1 60	1 30	10 15
	4 00	90	35	10	75	70	95	50	1 45	1 05	10 75
	4 50	1 10	20	25	65	75	75	75	1 80	95	11 70
on	3 65	95	15	25	70	50	1 05	55	1 50	65	9 95
	3 50	1 00	30	25	75	50	75	75	1 50	70	10 00
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
n	2 50	85	20	15	75	80	85	50	1 20	1 25	9 05
	2 50	1 00	30	10	85	80	65	50	1 00	85	8 55
	3 45	95	25	15	75	70	95	50	1 60	1 00	10 30
on	2 75	85	20	25	85	60	60	55	85	50	8 00
	2 00	1 00	35	15	55	60	55	65	1 00	1 00	7 85
	2 00	1 00	30	20	60	60	50	50	1 00	50	7 20
s	5 00	1 00	1 20	.....	60	75	60	40	1 40	35	11 30
	3 50	1 25	20	10	75	75	75	60	1 00	1 00	9 90
on	2 00	1 00	20	30	30	65	60	65	75	80	7 25
go	3 50	1 00	20	15	75	60	95	50	1 75	70	10 10
	3 25	80	25	15	85	75	75	65	1 40	1 95	10 80

RYE.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
Adams	$4 00	$1 00	$0 20	.....	$0 60	$0 75	$0 50	$0 40	$1 00	$0 90	$9 35
Alexander	3 00	1 00	30	$0 30	1 00	75	50	1 50	1 40	1 35	11 10
Bond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boone	3 50	1 00	20	25	1 10	75	90	65	1 35	55	10 25
Brown	2 75	85	25	60	65	75	1 00	80	1 40	1 00	10 05
Bureau	4 00	1 15	30	10	1 05	60	65	50	70	85	9 90
Calhoun	5 00	40	20	40	1 00	1 00	2 00	1 00	2 00	1 00	14 00
Carroll	3 75	1 00	25	15	1 35	40	1 50	50	80	1 75	11 45
Cass	3 25	1 00	30	20	80	85	1 00	75	1 35	60	10 10
Champaign	2 90	1 10	35	50	85	80	75	75	1 95	1 10	11 05
Christian	3 00	85	25	20	65	55	90	1 40	2 00	95	10 75
Clark	2 70	1 10	40	40	80	80	1 10	40	1 35	70	9 75
Clay	2 00	1 00	35	40	60	75	1 20	70	1 75	2 00	10 75
Clinton	3 00	90	20	15	60	50	50	50	1 50	75	8 60
Coles	3 00	1 00	25	20	65	75	75	85	1 00	50	8 95
Cook	3 00	1 20	40	25	1 00	1 05	1 05	55	1 20	1 30	11 00
Crawford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	2 25	75	35	50	75	75	75	60	1 30	85	8 85
DeKalb	3 25	1 00	25	15	1 20	65	95	50	2 40	50	10 85
DeWitt	3 00	1 00	20	20	80	75	75	1 25	1 00	60	9 55
Douglas	3 25	1 00	20	25	75	60	70	60	1 25	50	9 10
DuPage	3 00	1 25	50	.....	1 30	50	1 00	75	1 75	2 00	12 05
Edgar	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Edwards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Effingham	2 50	1 25	20	15	60	55	60	70	1 50	1 10	9 15
Fayette	2 00	1 00	30	20	70	60	60	50	80	65	7 35
Ford	2 50	1 00	25	10	70	65	35	35	1 00	1 00	7 90
Franklin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fulton	3 50	1 00	20	25	85	50	1 40	50	1 00	75	9 95
Gallatin	2 50	1 25	30	50	75	50	1 00	65	1 20	75	9 40
Greene	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grundy	3 50	1 25	25	15	1 25	75	1 25	50	1 00	1 75	11 65
Hamilton	2 00	75	25	40	60	50	75	25	1 00	20	6 70
Hancock	3 00	75	25	.....	90	75	1 00	75	1 00	65	9 05
Hardin	3 00	1 00	25	25	50	1 00	50	75	1 00	50	8 75
Henderson	3 75	1 00	20	10	80	75	75	55	1 10	55	9 55
Henry	4 45	1 10	20	10	95	90	1 60	55	1 25	80	11 90
Iroquois	2 35	95	20	30	80	50	75	45	1 60	45	8 35
Jackson	3 00	1 00	50	30	70	60	65	50	1 20	1 70	10 15
Jasper	1 50	1 00	25	20	1 00	60	60	50	1 00	50	7 15
Jefferson	2 00	1 00	25	30	75	75	50	60	90	1 00	8 05
Jersey	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
JoDaviess	2 50	85	30	20	85	85	85	85	1 65	1 00	9 90
Johnson	2 50	1 00	30	20	50	75	75	75	1 60	1 00	9 35
Kane	4 00	1 35	40	25	1 15	60	80	70	1 40	1 65	12 30
Kankakee	3 00	1 00	35	20	80	70	80	60	1 65	50	9 60
Kendall	4 00	1 00	50	15	1 10	75	85	1 00	2 00	60	11 95
Knox	3 75	1 00	40	20	80	70	75	50	1 50	55	10 15
Lake	3 00	1 25	20	25	95	60	85	60	1 75	1 00	10 45
LaSalle	4 00	95	30	20	95	90	90	50	1 20	75	10 65
Lawrence	2 00	75	25	10	50	50	20	40	90	1 25	6 85
Lee	3 50	1 00	35	15	65	60	75	65	1 50	55	9 70
Livingston	3 00	1 25	55	35	75	55	55	60	1 55	1 10	10 25
Logan	3 25	80	20	15	70	85	80	60	1 30	80	9 45
Macon	3 00	1 00	20	20	60	75	70	60	1 95	55	9 55
Macoupin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison	4 50	1 70	35	20	70	60	80	1 00	1 85	1 25	12 95
Marion	2 00	1 00	50	15	.....	60	60	50	60	75	6 70
Marshall	4 25	1 00	15	05	90	75	75	60	1 50	1 50	11 45

Rye—Continued.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
	$3 00	$1 10	$0 25	$0 40	$0 70	$9 75	$1 10	$0 75	$1 40	$0 65	$10 00
ugh	3 35	1 00	30	20	75	65	70	45	2 00	75	10 15
y	3 00	1 10	35	15	75	55	65	55	95	95	9 00
	3 00	1 00	30	15	75	70	90	50	1 50	50	9 30
	3 00	1 00	25	20	55	80	70	85	1 15	55	9 05
	3 65	95	15	20	1 50	65	65	60	1 00	55	9 90
nery	4 50	1 35	20	25	80	1 00	75	1 00	1 50	1 05	12 40
	2 50	1 00	40	10	60	70	70	50	1 50	50	8 50
	4 00	1 00	15	25	50	75	75	1 00	1 25	50	10 15
	2 50	75	15	10	50	70	85	70	1 50	45	8 20
	3 50	1 00	25	15	75	55	90	75	1 25	50	9 60
	4 50	1 05	30	10	95	65	75	30	1 15	1 00	10 75
	2 00	1 00	40	30	75	60	60	60	2 40	2 00	10 65
	3 50	1 30	30	20	65	75	90	90	1 00	85	10 35
	4 00	1 00	25	25	75	75	75	1 00	.....	1 00	9 75
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	4 00	75	20	.....	85	50	60	85	1 15	80	9 70
h	2 50	1 25	25	30	80	75	25	50	2 50	1 50	10 60
l	2 50	1 00	25	20	65	60	50	70	1 00	.....	7 40
and	3 60	1 20	35	20	85	75	90	70	1 55	65	10 75
	2 00	85	70	25	60	50	50	30	75	60	7 05
on	3 50	1 00	15	25	70	85	75	50	1 25	55	9 50
r	3 00	1 00	20	20	75	60	80	35	1 05	1 00	8 95
	3 50	1 00	20	20	40	75	1 50	75	1 00	1 00	10 30
	2 50	1 00	35	.....	1 00	1 00	1 00	1 00	2 00	50	10 35
	4 00	1 00	35	10	90	70	1 00	40	1 75	70	10 90
son	3 65	95	15	25	85	50	1 00	65	1 55	60	10 15
l	3 50	1 00	25	30	70	50	75	75	1 50	70	9 95
on	2 50	1 00	30	10	75	75	85	75	1 15	1 00	9 15
	3 50	1 00	30	15	90	65	65	50	1 50	95	10 10
gton	2 75	1 00	25	30	80	75	75	50	1 00	50	8 60
	1 50	1 00	35	35	1 00	75	60	70	1 25	50	8 00
ie	5 00	1 00	20	.....	1 15	60	50	30	1 50	75	11 00
	3 50	1 15	15	15	1 25	75	75	55	1 05	75	10 15
son											
ago	3 50	1 00	20	20	85	50	85	45	1 60	85	10 00
d	3 25	1 00	25	15	1 00	75	60	55	1 45	1 00	10 00

BARLEY.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
Adams	$4 00	$1 00	$0 20	.....	$0 50	$0 75	$0 50	$0 30	$0 70	$1 00	$8 95
Alexander	3 00	1 00	30	$0 30	1 00	75	50	.....	1 15	1 60	9 60
Bond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boone	3 85	1 00	20	25	1 10	75	1 00	95	1 20	60	10 90
Brown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bureau	4 00	1 50	40	10	1 00	60	50	50	1 05	85	10 50
Calhoun	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carroll	3 75	1 00	30	15	1 10	40	.....	1 00	85	1 60	10 15
Cass	3 50	75	25	30	1 25	75	1 00	75	2 00	75	11 30
Champaign	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Christian	2 00	65	20	20	80	50	1 20	1 20	1 80	75	9 30
Clark	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cook	3 00	1 00	25	.....	1 05	1 10	.....	1 10	1 00	60	9 10
Crawford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
DeKalb	3 25	1 00	25	15	1 25	60	80	1 40	2 00	35	11 05
DeWitt	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Douglas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
DuPage	3 00	1 25	50	.....	1 80	50	1 00	75	1 50	2 00	12 30
Edgar	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Edwards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Effingham	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fayette	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ford	2 50	1 20	30	.....	1 50	65	45	50	1 00	1 00	9 10
Franklin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fulton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gallatin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greene	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grundy	4 50	1 50	25	15	1 50	60	1 20	50	1 00	1 75	12 85
Hamilton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hancock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hardin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Henderson	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Henry	4 35	1 15	15	10	1 35	1 35	2 00	45	1 60	75	13 35
Iroquois	2 65	95	15	30	85	55	1 10	45	1 40	70	9 10
Jackson	3 00	1 00	50	30	50	60	60	50	1 60	2 30	10 90
Jasper	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jersey	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
JoDaviess	2 50	50	15	20	1 50	50	75	75	1 50	1 25	9 60
Johnson	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kane	4 00	1 35	40	25	1 00	60	80	70	1 40	1 50	12 60
Kankakee	3 00	1 00	50	20	1 00	80	1 00	80	2 00	65	10 95
Kendall	4 00	1 00	50	15	1 00	75	85	1 00	2 00	60	11 85
Knox	4 00	85	30	10	75	75	50	60	1 50	2 35	11 70
Lake	3 00	1 25	20	25	1 30	60	75	60	1 50	1 00	10 45
LaSalle	4 00	1 10	35	10	90	1 00	1 00	50	1 20	1 00	11 15
Lawrence	2 00	75	25	10	75	50	30	60	1 80	1 25	8 30
Lee	3 50	1 00	35	25	1 10	60	75	1 00	1 65	60	10 90
Livingston	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Logan	4 00	1 00	50	15	1 80	1 10	.....	1 50	1 50	50	12 05
Macon	3 00	1 00	30	25	80	50	.....	1 00	2 00	70	9 55
Macoupin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison	4 50	1 70	35	20	1 20	60	75	1 00	1 75	1 25	13 30
Marion	2 00	1 00	50	15	.....	60	.....	50	.....	.....	.....
Marshall	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Barley—Continued.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Binding	Stacking	Threshing	Marketing	Total cost
ugh											
y	$2 40	$1 10	$0 40	$0 25	$0 55	$0 75	$0 50	$0 35	$0 40	$0 50	$7 20
	3 00	1 00	20	30	1 00	30	70	75	1 75	40	9 40
	4 00	1 25		20	1 00	90	75	85	1 75	1 00	11 70
mery	2 50	1 00	35	10	1 00	70	45	50	1 50	30	8 40
	3 00	75	15	40	70	70	75	65		1 60	8 70
	3 50	1 00	25	15	90	55	80	80	1 30	65	9 90
	3 50	1 00	30	30	90	75	95	75	2 00	80	11 25
h	2 50	1 25	25	30	1 00	75	25	50	2 50	1 50	10 80
d											
land	3 60	1 20	35	20	1 55	75	90	75	1 85	70	11 85
on											
r	2 50	1 25	25	20	90	75	60	25	85	60	8 15
	4 00	1 00	40	10	80	65	1 50	40	1 60	85	11 30
	4 50	2 00		25	1 25	50	2 00	1 50	3 50	1 50	17 00
son	3 65	95	15	25	1 05	50	1 50	45	1 40	60	10 50
l	4 00	1 00	25	20	1 00	50	50	75	1 40	35	9 25
n											
	3 75	1 00	15		1 00	65	65	50	1 45	1 50	10 65
ton											
ie	4 00	1 25	25		1 25	50		70	1 50	75	10 20
	3 00	1 25	20	25	1 00	65	75	60	1 05	85	9 60
ion											
go	3 50	75	10		1 00	50	1 00	60	1 15	50	9 15
d	3 25	90	25		1 00	75	70	50	1 35	1 00	9 70

IRISH POTATOES.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land ...	Plowing ...	Harrowing ...	Laying off ...	Planting ...	Seed ...	Tending ...	Gathering ...	Marketing ...	Total cost ...
Adams	$4 65	$1 00	$0 20	$0 10	$0 60	$2 00	$1 90	$2 00	$3 20	$15 [illegible]
Alexander	3 00	1 00	20	20	1 60	3 10	2 25	3 50	3 50	18 [illegible]
Bond	2 35	85	20	15	50	7 00	3 10	2 00	3 50	19 [illegible]
Boone	3 75	1 00	20	.....	2 75	2 15	2 00	7 00	5 10	23 [illegible]
Brown	2 90	90	15	20	75	3 00	1 90	2 50	5 00	17 [illegible]
Bureau	4 00	1 25	25	10	2 00	3 50	2 00	4 50	1 50	19 [illegible]
Calhoun	5 00	50	20	10	1 00	5 50	1 50	3 00	5 00	21 [illegible]
Carroll	4 00	1 00	25	.....	4 00	2 40	5 00	10 00	5 00	32 [illegible]
Cass	4 10	1 00	20	20	1 20	5 45	2 80	3 35	4 00	22 [illegible]
Champaign	2 80	1 10	35	50	2 30	3 75	2 75	3 20	3 35	20 [illegible]
Christian	4 50	90	25	20	1 50	3 50	1 30	3 50	3 50	18 [illegible]
Clark	3 90	1 00	30	25	1 65	4 30	1 75	4 00	4 00	21 [illegible]
Clay	2 85	1 05	40	20	1 05	2 65	2 00	3 35	3 85	17 [illegible]
Clinton	3 00	1 25	20	25	.....	6 00	1 50	5 00	5 00	22 [illegible]
Coles	3 50	1 00	25	15	1 45	2 75	1 75	3 25	3 00	17 [illegible]
Cook	4 00	1 00	15	.....	1 00	.....	3 00	3 00	5 00	15 [illegible]
Crawford	3 00	1 00	25	45	40	4 00	1 50	3 50	4 00	17 [illegible]
Cumberland	2 00	1 00	30	10	1 00	2 25	1 50	3 00	3 00	14 [illegible]
DeKalb	3 50	1 00	20	15	2 00	5 00	2 50	6 25	2 75	21 [illegible]
DeWitt	3 00	1 00	20	25	1 00	3 00	1 25	4 00	1 50	15 [illegible]
Douglas	4 00	1 25	25	20	1 00	3 55	2 25	4 00	2 00	18 [illegible]
DuPage	4 00	1 35	50	.....	2 00	5 00	3 00	6 00	10 00	31 [illegible]
Edgar	3 75	80	20	10	1 35	2 85	1 55	2 90	2 15	15 [illegible]
Edwards	2 75	1 40	30	10	1 35	2 85	2 00	3 00	2 75	15 [illegible]
Effingham	2 75	1 00	25	55	2 00	5 15	1 85	5 00	3 35	21 [illegible]
Fayette	2 75	1 00	30	20	2 00	3 80	5 00	4 00	4 00	23 [illegible]
Ford	2 50	1 00	30	10	2 60	2 50	1 10	4 00	5 00	20 [illegible]
Franklin	2 00	1 00	20	20	1 25	4 00	2 50	4 00	1 00	16 [illegible]
Fulton	3 00	75	20	25	1 50	3 00	1 00	4 00	2 00	15 [illegible]
Gallatin	3 00	1 45	30	20	1 50	2 50	3 50	3 85	3 50	19 [illegible]
Greene	5 00	1 00	1 00	25	50	4 00	1 50	2 00	2 00	17 [illegible]
Grundy	3 75	1 25	20	10	1 45	2 70	1 30	4 00	4 00	19 [illegible]
Hamilton	2 00	1 25	25	25	1 75	4 55	1 25	8 00	3 00	24 [illegible]
Hancock	3 50	1 00	25	35	1 50	3 50	4 00	4 00	5 50	24 [illegible]
Hardin	3 85	1 25	40	25	1 15	3 50	1 75	3 65	2 65	19 [illegible]
Henderson	3 75	90	10	15	1 50	2 35	2 40	3 75	3 65	19 [illegible]
Henry	4 30	1 05	20	15	85	3 50	2 00	5 65	3 00	22 [illegible]
Iroquois	3 00	1 00	20	10	2 00	8 00	1 00	5 00	5 00	25 [illegible]
Jackson	2 50	1 00	45	20	1 50	3 50	2 15	5 15	7 50	25 [illegible]
Jasper	1 50	1 00	20	35	1 50	2 00	2 00	3 00	4 00	18 [illegible]
Jefferson	2 25	1 00	40	15	1 20	2 75	2 00	3 00	4 50	17 [illegible]
Jersey	4 00	1 00	35	10	1 25	4 00	2 25	4 00	4 00	22 [illegible]
JoDaviess	2 25	75	15	30	2 25	2 00	2 25	4 50	4 25	18 [illegible]
Johnson	3 00	1 35	40	25	1 00	2 75	2 50	3 00	4 00	18 [illegible]
Kane	4 00	1 35	40	25	2 15	2 50	2 65	5 00	4 35	22 [illegible]
Kankakee	3 00	1 00	30	50	2 50	3 85	5 00	5 35	4 50	26 [illegible]
Kendall	4 00	1 00	25	20	2 00	3 60	2 50	4 35	4 00	21 [illegible]
Knox	3 65	90	35	20	2 90	3 15	2 25	4 00	.....	.....
Lake	3 00	1 25	20	55	2 00	3 00	3 00	4 50	2 00	19 [illegible]
LaSalle	4 00	1 00	20	15	1 85	3 50	1 70	5 00	4 00	21 [illegible]
Lawrence	3 50	1 00	25	20	1 00	4 00	1 50	4 00	3 00	18 [illegible]
Lee	3 25	1 00	25	20	1 20	2 75	1 80	4 65	3 35	18 [illegible]
Livingston	3 50	1 35	20	60	2 75	3 20	2 85	4 50	3 50	22 [illegible]
Logan	3 50	1 00	20	25	1 10	4 50	2 25	4 00	3 00	19 [illegible]
Macon	3 00	1 00	30	20	2 25	4 00	3 00	4 00	3 00	20 [illegible]
Macoupin	4 00	1 00	30	15	1 25	3 00	2 00	3 25	5 00	19 [illegible]
Madison	4 00	1 25	20	20	70	4 95	1 20	3 30	3 50	19 [illegible]
Marion	2 00	1 00	50	30	35	3 00	3 00	2 00	3 00	15 [illegible]
Marshall	4 25	1 00	15	65	1 65	3 00	1 10	6 00	4 35	22 [illegible]

Irish Potatoes—Continued.

Counties.	Use of land	Plowing	Harrowing	Laying off	Planting	Seed	Tending	Gathering	Marketing	Total cost
.....	$3 00	$1 25	$0 30	.....	$1 50	$6 00	$1 25	$3 00	$4 00	$20 30
.....	3 50	1 00	25	$0 30	50	2 40	3 00	1 50	1 00	13 45
ugh	4 00	1 00	25	10	1 00	2 00	5 00	5 00	4 00	22 35
y	3 00	1 25	35	15	1 10	3 75	3 25	4 00	3 00	19 85
.....	3 00	1 00	25	25	1 70	3 70	3 00	5 50	5 50	23 90
.....	3 50	1 00	20	20	60	5 50	3 00	5 00	5 00	24 00
.....	3 65	90	20	.....	1 10	3 00	1 65	4 50	5 50	20 50
.....	4 50	1 10	20	20	65	1 95	1 25	3 00	10 00	22 85
nery	2 50	1 00	25	30	2 00	5 00	2 00	3 00	3 00	19 05
.....	4 00	1 00	30	50	2 00	3 50	2 00	5 00	3 00	21 30
.....	3 50	1 00	20	30	2 40	5 50	1 60	5 00	2 50	22 00
.....	4 00	1 00	30	15	2 00	2 80	1 75	5 00	3 75	20 75
.....	4 50	1 00	20	25	2 50	4 00	1 50	4 50	8 00	26 45
.....	4 00	1 00	20	10	2 00	3 50	3 00	4 50	4 50	22 80
.....	3 25	1 25	20	25	1 05	2 05	1 85	3 85	3 50	17 25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	3 50	2 00	50	25	1 65	2 80	1 75	5 00	6 85	24 30
.....	3 00	1 75	40	15	60	3 00	2 50	4 00	4 00	19 40
.....	4 00	1 00	25	25	1 75	3 00	2 00	4 50	3 00	19 75
gh	5 50	1 35	25	30	2 75	6 50	5 00	5 00	10 00	36 65
d	3 00	1 25	35	15	2 00	3 30	1 85	3 00	4 00	18 90
land	3 80	1 35	45	30	2 60	3 10	2 30	4 80	4 00	22 70
.....	2 00	1 00	50	30	1 00	3 00	2 00	2 00	5 00	16 80
on	4 00	1 00	20	10	1 50	4 00	2 00	6 00	5 00	23 80
r	3 00	1 00	20	.....	1 50	4 50	2 00	6 00	3 35	21 55
.....	3 50	1 00	20	50	60	3 00	3 75	5 00	3 00	20 55
.....	2 00	1 00	25	20	1 75	3 25	1 65	5 50	2 75	18 35
.....	4 00	1 00	20	20	1 50	4 25	1 75	4 00	4 00	20 90
.....	6 00	1 75	80	15	2 25	2 50	3 75	3 75	5 00	25 95
son	3 75	95	25	.....	2 25	2 60	1 25	7 50	3 75	22 30
ll	4 00	1 00	45	20	1 35	5 85	2 50	4 65	4 00	24 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
on	2 75	1 00	15	20	1 00	4 50	2 75	4 50	4 50	21 35
.....	3 00	1 40	50	25	70	2 65	3 00	2 75	3 00	17 25
.....	3 50	1 00	25	80	1 35	4 50	1 85	4 35	5 00	23 10
gton	4 00	1 00	20	15	1 50	4 50	1 50	3 75	3 00	19 60
.....	2 35	1 35	50	35	1 25	3 25	3 35	3 50	3 50	19 40
.....	4 00	1 75	45	20	1 45	3 35	1 50	5 00	3 00	20 65
de	5 00	1 00	10	50	2 00	2 40	2 00	6 00	4 00	23 00
.....	3 50	1 25	20	35	1 45	3 50	2 50	5 00	3 00	20 75
son	2 50	1 00	20	20	1 00	3 50	1 85	3 25	6 00	19 50
ago	3 50	1 25	25	15	2 00	2 25	2 75	5 00	2 75	19 90
rd	3 00	75	10	1 00	2 00	3 00	3 50	4 00	2 50	19 85

FLAX.

COST PER ACRE—CULTIVATION, ETC.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Stacking	Threshing	Marketing	Total cost
Adams										
Alexander										
Bond										
Boone	$3 75	$1 00	$0 35	$0 25	$1 35	$0 85	$0 75	$1 50	$0 50	$10 [illegible]
Brown										
Bureau										
Calhoun										
Carroll										
Cass										
Champaign	2 80	1 15	25	50	1 40	85	75	2 25	60	10 [illegible]
Christian	2 50	85	20	20	55	60	1 00	2 50	35	8 [illegible]
Clark										
Clay	2 00	90	40	25	55	85	65	2 00	65	8 [illegible]
Clinton										
Coles										
Cook	3 25	1 50	25	25	1 35	60	50	80	60	9 [illegible]
Crawford										
Cumberland	2 50	1 00	50	25	75	75	50	2 50	45	9 [illegible]
DeKalb	3 85	1 00	25	15	1 10	75	1 00	2 00	40	10 [illegible]
DeWitt										
Douglas	3 00	1 25	50	35	50	75	75	1 25	60	8 [illegible]
DuPage	3 50	1 40	55		1 65	60	70	1 35	1 00	10 [illegible]
Edgar										
Edwards										
Effingham	2 75	1 50	15	40	1 50	75	80	1 50	1 00	10 [illegible]
Fayette										
Ford	2 80	1 10	35	15	90	60	45	1 20	30	7 [illegible]
Franklin	2 00	90	20	20	50	60		1 50	80	6 [illegible]
Fulton										
Gallatin										
Greene										
Grundy	3 50	1 25	25	15	1 45	75	50	1 50	1 25	10 60
Hamilton	2 00	75	25	40	60	50	30	1 00	15	5 [illegible]
Hancock										
Hardin										
Henderson										
Henry	5 00	1 25	15	10		1 75	50	2 00	50	11 [illegible]
Iroquois	3 50	95	15	30	70	65	35	80	30	7 [illegible]
Jackson	3 00	1 00	50	30		50				
Jasper	1 50	1 00	20	15	60	50	50	1 75	40	6 [illegible]
Jefferson										
Jersey										
JoDaviess	2 50	50	15	20	1 50	50	1 50	3 00	1 00	10 [illegible]
Johnson										
Kane	4 50	1 30	25	30	1 00	50	80	3 50	1 25	13 [illegible]
Kankakee	2 25	1 00	35	25	1 00	85	70	1 50	70	8 [illegible]
Kendall										
Knox										
Lake	3 85	1 25	20	20	1 15	75	75	1 20	60	9 [illegible]
LaSalle	4 50	1 00	60	50	70	1 00	1 00	2 50	50	12 [illegible]
Lawrence	3 00	75	25	75						
Lee	3 25	1 00	35		50	50	1 50	1 50	50	9 [illegible]
Livingston	3 00	1 00	30	15	1 10	75	35	3 50	50	10 [illegible]
Logan										
Macon	3 00	1 00	20	20	85	60	90	2 00	55	9 [illegible]
Macoupin										
Madison										
Marion	2 00	1 00	50	20		75				
Marshall										

Flax—Continued.

Counties.	Use of land	Plowing	Harrowing	Planting	Seed	Cutting	Stacking	Threshing	Marketing	Total cost
ugh										
y	$2 60	$1 00	$0 45	$0 25	$1 00	$0 65	$1 15	$0 95	$2 00	$10 05
mery	2 50	1 00	35	15						
	2 75	75	25	25	1 00	95	85	1 80	30	8 90
	3 75	1 00	30	20	1 60	55	75	1 65	60	10 40
	3 25	1 25	35	20	80	1 00	65	1 75	75	10 00
h										
d	3 00	1 00	25	50	1 10					
land										
on										
r	2 75	1 00	20	20	1 00	75	25	1 50	50	8 15
son	3 65	95	75	25	1 00	50	60	75	80	9 25
ll	5 00	2 00	1 00		1 50			2 00	35	11 85
on	3 00	1 00	30	10	1 10	50	95	1 05	65	8 65
gton	2 50	75	20	30	1 00	75	50	1 50	25	7 75
	2 00	1 25	75	25	80	75	1 00	1 60	40	8 80
de	3 00	1 25	20		75	75	75	1 90	50	9 10
son										
ago										
rd										

CORN.

TABLE SHOWING ACREAGE, YIELD IN BUSHELS, VALUE OF CROP, ETC., FOR 1880.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bus.—cents	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	88,422	103	91,075	34	3,096,550	42	$1,300,551	$14 75	$1,070,131	$230,420	
Alexander	10,239	100	10,239	44	450,516	40	180,206	11 90	121,844	58,362	
Bond	*38,340	85	32,589	15	488,835	40	195,534	10 40	338,926		$143,392
Boone	28,055	107	30,019	40	1,200,760	33	396,251	12 05	361,729	34,522	
Brown	34,050	90	30,645	25	766,125	38	291,127	10 25	314,111		22,984
Bureau	183,152	106	194,141	34	6,600,794	33	2,178,262	11 25	2,184,086		5,824
Calhoun	14,715	100	14,715	32	470,880	40	188,352	13 35	196,445		8,093
Carroll	63,733	103	65,645	45	2,954,025	29	856,667	11 30	741,788	114,879	
Cass	50,550	98	49,548	32	1,585,536	32	507,371	9 85	488,048	19,323	
Champaign	227,029	93	211,137	36	7,600,932	32	2,432,298	10 90	2,301,393	130,905	
Christian	142,035	66	93,743	39	3,655,877	30	1,096,763	9 30	871,810	224,953	
Clark	45,857	87	39,895	27	1,077,165	35	377,008	9 60	382,992		5,984
Clay	32,225	95	30,614	18	551,052	40	220,421	10 40	318,386		97,965
Clinton	48,893	94	45,959	17	781,303	48	375,025	10 20	468,782		93,757
Coles	71,201	91	64,793	37	2,397,341	30	719,202	10 00	647,930	71,272	
Cook	53,347	102	54,414	39	2,122,146	38	806,415	10 05	546,861	259,554	
Crawford	35,300	91	32,123	34	1,092,182	35	382,264	9 55	306,775	75,489	
Cumberland	29,806	82	24,441	35	855,435	31	265,185	8 15	199,194	65,991	
DeKalb	115,281	104	119,892	38	4,555,896	36	1,640,122	10 80	1,294,834	345,288	
DeWitt	79,503	90	71,553	30	2,146,590	30	643,977	8 45	604,623	39,354	
Douglas	74,290	100	74,290	39	2,897,310	30	869,193	10 45	776,330	92,863	
DuPage	31,773	105	33,362	42	1,401,204	35	490,421	13 05	435,374	55,047	
Edgar	117,558	87	102,275	37	3,784,175	34	1,286,619	8 55	874,451	412,168	
Edwards	19,281	81	15,618	23	359,214	41	147,278	9 00	140,562	6,716	
Effingham	37,547	105	39,424	22	867,328	34	294,891	11 30	445,491		150,600
Fayette	51,152	98	50,129	18	902,322	41	369,952	10 10	506,303		136,351
Ford	126,855	97	123,049	30	3,691,470	32	1,181,270	9 35	1,150,508	30,762	
Franklin	19,847	96	19,053	27	514,431	40	205,772	8 45	160,998	44,774	
Fulton	110,017	103	113,317	35	3,966,095	31	1,229,489	10 55	1,195,494	33,995	
Gallatin	27,117	90	24,405	22	536,910	40	214,764	10 80	263,574		48,810
Greene	53,514	97	51,908	45	2,335,860	35	817,551	13 45	698,363	119,188	
Grundy	91,486	115	105,209	28	2,945,852	35	1,031,048	9 90	1,041,589		10,541
Hamilton	24,748	96	23,758	20	475,160	40	190,064	8 50	201,943		11,879
Hancock	125,193	109	136,492	29	4,252,468	33	1,403,314	9 45	1,182,094	221,157	
Hardin	9,455	100	9,755	28	214,[illegible]	34	74,[illegible]	9 65	[illegible]		[illegible]

Henderson	68,836	103	70,901	43	3,048,743	28	853,648	9 40	666,469	187,179	.....	
Henry	193,637	105	203,319	34	6,912,846	30	2,073,854	11 80	2,399,164	.....	325,310	
Iroquois	249,194	96	239,226	22	5,262,972	34	1,789,410	8 40	2,009,498	.....	220,088	
Jackson	27,265	85	23,175	17	393,975	51	200,927	13 35	309,386	.....	108,459	
Jasper	29,685	96	28,498	35	997,430	36	359,075	8 80	250,782	108,293	.....	
Jefferson	35,265	97	34,207	19	649,933	47	305,468	9 65	330,097	.....	24,629	
Jersey	34,448	102	35,137	31	1,089,247	36	392,129	11 90	418,130	.....	26,001	
JoDaviess	55,027	100	55,027	41	2,256,107	32	721,954	12 85	707,097	14,857	.....	
Johnson	20,186	100	20,186	27	545,022	35	190,758	8 55	172,590	18,168	.....	
Kane	50,365	102	51,372	37	1,900,764	36	684,275	13 60	698,659	.....	14,384	
Kankakee	127,750	90	114,975	25	2,874,375	34	977,287	9 30	1,069,267	.....	91,980	
Kendall	73,894	103	76,111	39	2,968,329	33	979,548	10 80	821,999	157,549	.....	
Knox	151,065	106	160,129	38	6,084,902	30	1,825,471	11 70	1,873,509	.....	48,038	
Lake	22,293	96	21,401	41	877,441	38	333,427	13 35	285,703	47,724	.....	
LaSalle	252,569	99	250,043	35	8,751,505	36	3,150,542	11 25	2,812,983	337,559	.....	
Lawrence	31,562	88	27,774	33	916,542	45	412,444	10 65	295,793	116,651	.....	
Lee	703,809	111	115,228	33	3,802,524	34	1,292,858	10 20	1,175,326	117,532	.....	
Livingston	272,756	92	250,935	19	4,767,765	32	1,525,685	10 10	2,534,443	.....	1,008,758	
Logan	156,119	97	151,435	35	5,300,225	30	1,590,067	9 25	1,400,773	189,294	.....	
Macon	119,423	93	111,063	43	4,775,709	33	1,575,984	10 95	1,216,140	359,844	.....	
Macoupin	102,827	85	87,403	40	3,496,120	30	1,048,836	10 20	891,511	157,325	.....	
Madison	89,576	93	83,306	27	2,249,262	39	877,212	12 50	1,041,325	.....	164 113	
Marion	39,732	96	38,143	13	495,859	40	198,344	8 95	341,380	.....	143,036	
Marshall	79,611	107	85,184	41	3,492,544	35	1,222,390	10 80	919,987	302,403	.....	
Mason	*67,599	91	61,515	20	1,230,300	35	430,605	8 50	522,877	.....	92,272	
Massac	15,348	100	15,348	28	429,744	43	184,790	14 50	222,546	.....	37,756	
McDonough	99,440	102	101,429	32	3,245,728	32	1,038,633	11 20	1,136,005	.....	97,372	
McHenry	55,383	107	59,260	44	2,607,440	36	938,678	11 50	681,490	257,188	.....	
McLean	272,137	97	263,973	31	8,183,163	32	2,618,612	9 50	2,507,743	110,869	.....	
Menard	60,052	95	57,049	31	1,768,519	30	530,556	10 65	607,572	.....	77,016	
Mercer	105,944	106	112,301	42	4,716,642	28	1,320,660	11 00	1,235,311	85,349	.....	
Monroe	17,882	99	17,703	33	584,199	39	227,837	13 70	242,531	.....	14,694	
Montgomery	105,047	73	76,684	33	2,530,572	32	809,783	9 10	697,824	111,959	.....	
Morgan	101,297	98	99,271	42	4,169,382	30	1,250,815	10 65	1,057,236	193,579	.....	
Moultrie	58,520	86	50,327	34	1,711,118	30	513,335	9 50	478,106	35,229	.....	
Ogle	114,314	100	114,314	40	4,572,560	34	1,554,670	9 55	1,091,699	462,971	.....	
Peoria	120,423	110	132,465	40	5,298,600	33	1,748,538	11 05	1,463,738	284,800	.....	
Perry	11,633	100	11,633	12	139,596	50	69,798	8 15	94,809	.....	25,011	
Piatt	97,153	93	90,352	33	2,981,616	31	924,301	10 20	921,590	2,711	.....	
Pike	73,120	87	63,614	22	1,399,508	42	587,793	11 90	757,007	.....	169,214	
Pope	23,241	100	23,241	27	627,507	40	251,003	10 70	248,679	2,324	.....	
Pulaski	11,880	100	11,880	25	297,000	50	148,500	12 65	150,282	.....	1,782	
Putnam	30,556	102	31,167	40	1,246,680	33	411,404	10 15	316,345	95,059	.....	
Randolph	27,907	105	29,302	27	791,154	55	435,135	10 30	301,811	133,324	.....	
Richland	26,334	96	25,281	15	379,215	40	151,686	9 45	238,905	.....	87,219	
Rock Island	65,053	103	67,004	32	2,144,128	30	643,238	12 35	827,499	.....	184,261	
Saline	21,947	80	17,558	20	351,160	35	122,906	8 40	147,487	.....	24,581	
Sangamon	155,346	88	136,704	36	4,921,344	30	1,476,403	11 50	1,572,096	.....	95,693	
Schuyler	44,887	99	44,438	32	1,422,016	36	511,926	10 80	479,930	31,996	.....	
Scott	30,096	91	27,387	39	1,068,093	34	363,152	10 60	290,302	72,850	.....	
Shelby	88,509	87	77,008	36	2,772,108	31	859,353	11 00	847,033	12,320	.....	
Stark	68,705	101	69,392	37	2,567,504	33	847,276	10 90	756,373	90,903	.....	

Corn—Continued.

Counties.	Acreage returned 1879, by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bus.—cents	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
St. Clair	43,960	100	43,960	37	1,626,520	50	$813,260	$15 25	$670,390	$142,870	.....
Stephenson	77,851	105	81,743	38	3,106,234	34	1,056,119	10 00	817,430	238,689	.....
Tazewell	123,239	96	118,309	34	4,022,506	33	1,327,427	9 20	1,088,443	238,984	.....
Union	19,775	100	19,775	30	593,250	42	249,165	*10 55	208,626	40,539	.....
Vermilion	151,337	93	140,743	43	6,051,949	32	1,936,624	9 65	1,358,169	578,455	.....
Wabash	16,882	91	15,363	22	337,986	37	125,055	10 9	168,225	.....	$43,170
Warren	121,803	105	127,893	39	4,987,827	29	1,446,470	13 05	1,669,004	.....	222,534
Washington	31,240	100	31,240	13	406,120	50	203,060	9 15	285,846	.....	82,786
Wayne	42,002	84	35,282	20	705,640	46	324,594	8 45	298,133	26,461	.....
White	49,070	100	49,070	18	883,260	41	362,137	9 95	488,246	.....	126,109
Whiteside	113,278	112	126,871	35	4,440,485	30	1,332,145	10 25	1,300,428	31,717	.....
Will	131,228	102	133,852	36	4,818,672	37	1,782,908	11 05	1,479,065	303,843	.....
Williamson	21,949	95	20,851	19	396,169	40	158,467	9 60	200,170	.....	41,703
Winnebago	72,981	103	75,170	39	2,931,630	34	996,754	10 05	755,458	241,296	.....
Woodford	117,084	98	114,742	27	3,098,034	33	1,022,351	10 10	1,158,894	.....	136,543
Total	7,801,900	97	7,574,545	33	250,697,036	33	$83,757,039	$10 50	$79,411,857	$8,834,845	$4,489,663

* Estimated.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bu.	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	67,242	94	63,611	13	826,943	$0 87	$719,440	$10 85	$690,179	$29,261	
Alexander	7,498	106	7,948	13	103,324	87	89,892	12 60	100,145		$10,253
Bond	†28,357	114	32,327	20	646,540	80	517,232	10 45	337,817	179,415	
Boone	888	130	1,159	22	25,498	87	22,183	11 40	13,213	8,970	
Brown	21,045	115	24,202	20	484,040	80	387,232	10 60	256,541	130,691	
Bureau	1,884	35	660	7	4,620	95	4,389	10 00	6,600		2,211
Calhoun	17,217	109	18,897	27	510,219	†84	428,584	13 00	245,661	182,923	
Carroll	9,461	82	7,805	25	195,125	1 00	195,125	11 75	91,709	103,416	
Cass	18,506	112	20,831	17	354,127	81	286,843	11 25	234,349	52,494	
Champaign	15,818	124	19,712	20	394,240	83	327,219	11 25	221,760	105,459	
Christian	54,159	152	82,321	25	2,058,025	81	1,667,000	10 95	901,415	765,585	
Clark	37,924	135	51,197	15	767,955	83	637,403	9 75	499,171	138,232	
Clay	21,609	150	32,413	16	518,608	80	414,886	10 45	338,716	76,170	
Clinton	74,762	114	85,228	18	1,534,104	83	1,273,306	11 45	975,860	297,446	
Coles	26,941	123	33,272	20	665,440	81	539,006	10 20	369,374	199,632	
Cook	221	105	232	19	4,408	87	3,835	10 15	2,355	1,480	
Crawford	37,987	125	47,636	14	666,904	80	533,523	9 05	431,106	102,417	
Cumberland	23,803	118	28,400	13	369,200	82	302,744	8 80	249,920	52,824	
DeKalb	300	36	108	20	2,160	82	1,771	11 50	1,242	529	
DeWitt	5,096	170	8,713	17	148,121	82	121,459	9 45	82,338	39,121	
Douglas	8,346	281	33,477	19	446,063	80	356,850	9 35	219,510	137,340	
DuPage	344	91	316	†10	3,160	†84	2,654	12 25	3,871		1,217
Edgar	33,220	142	47,339	17	804,763	83	667,953	9 30	440,253	227,700	
Edwards	22,951	114	26,164	13	340,132	80	272,106	10 90	285,188		13,082
Effingham	39,053	120	46,863	14	656,082	81	531,426	10 10	473,316	58,110	
Fayette	48,288	118	56,980	16	911,680	84	765,811	8 75	498,575	267,236	
Ford	502	58	295	†10	2,950	†84	2,478	9 35	2,758		280
Franklin	26,955	105	28,303	10	283,030	76	215,103	8 65	244,821		29,718
Fulton	24,786	148	36,807	20	726,140	80	588,912	10 75	395,675	193,237	
Gallatin	19,217	110	21,139	14	295,946	83	245,635	10 15	214,561	31,074	
Greene	50,893	114	58,018	24	1,392,432	88	1,225,340	11 25	652,702	572,638	
Grundy	303	26	80	10	800	†84	672	11 00	880		208
Hamilton	28,308	130	36,800	11	404,800	77	311,696	8 95	329,360		17,664
Hancock	26,966	103	27,953	16	447,248	89	398,051	11 10	310,278	87,773	
Hardin	4,116	117	4,815	9	43,335	82	35,535	9 45	45,502		9,967
Henderson	7,096	58	4,119	9	37,071	90	33,364	9 70	39,954		6,590
Henry	1,179	41	484	†10	4,840	1 00	4,840	11 50	5,566		726
Iroquois	4,712	95	4,510	17	76,670	75	57,502	9 25	41,717	15,785	

Winter Wheat—Continued.

Counties.	Acreage returned by assessors 1879.	*Per cent of increase or decrease	Acreage 1880.	Yield per acre in bushels	Total yield in bushels	Price per bu.	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Jackson	49,906	103	51,403	9	462,627	$0 80	$370,102	$9 65	$496,039		$125,937
Jasper	21,190	120	25,428	16	406,848	80	325,478	7 75	197,067	$128,411	
Jefferson	47,823	115	54,996	14	769,944	76	585,157	9 30	511,463	73,694	
Jersey	49,349	104	51,747	26	1,345,422	81	1,089,792	11 95	618,377	471,415	
Jo Daviess	5,298	164	8,689	14	121,646	95	115,564	12 20	106,006	9,558	
Johnson	18,522	110	20,374	8	162,992	82	133,653	7 50	152,805		19,152
Kane	230	89	205	16	3,280	90	2,952	14 05	2,880	72	
Kankakee	1,452	159	2,309	15	34,635	85	29,440	10 10	23,321	6,119	
Kendall	175	81	142	15	2,130	95	2,023	12 30	1,746	277	
Knox	3,810	136	5,182	16	82,912	83	68,817	10 85	56,225	12,592	
Lake	31	70	22	21	462	95	439	11 40	251	188	
LaSalle	1,164	45	529	10	5,290	1 00	5,290	11 15	5,898		608
Lawrence	38,192	115	43,921	14	614,894	81	498,064	11 00	483,131	14,933	
Lee											
Livingston	1,934	33	643	10	6,430	†84	5,401	11 25	7,234		1,833
Logan	10,181	232	23,701	21	497,721	80	398,177	10 30	244,120	154,057	
Macon	15,166	150	22,802	22	501,644	83	416,364	9 85	224,600	191,764	
Macoupin	99,129	115	114,424	26	2,975,024	83	2,469,270	11 40	1,304,434	1,164,836	
Madison	117,980	120	141,576	25	3,539,400	86	3,043,884	11 65	1,649,360	1,394,524	
Marion	37,221	103	38,524	20	770,480	81	624,089	8 75	337,085	287,004	
Marshall	986	62	621	18	11,178	87	9,725	10 65	6,614	3,111	
Mason	†8,056	117	9,456	19	179,664	82	147,324	10 00	94,560	52,764	
Massac	19,846	105	20,838	8	166,704	88	146,699	11 75	244,846		98,147
McDonough	11,242	89	10,073	17	171,241	80	136,993	10 10	101,737	35,256	
McHenry	531	112	597	22	13,134	94	12,346	10 70	6,388	5,958	
McLean	6,545	177	11,635	20	232,700	88	204,776	10 40	121,004	83,772	
Menard	13,518	140	18,947	19	359,993	78	280,794	10 30	195,154	85,640	
Mercer	1,613	24	392	5	1,960	75	1,470	10 20	3,998		2,528
Monroe	50,787	123	62,468	26	1,624,168	80	1,299,334	13 95	871,428	427,906	
Montgomery	86,426	160	138,611	24	3,326,664	80	2,661,331	9 90	1,372,249	1,289,082	
Morgan	41,178	149	61,603	19	1,170,457	80	936,366	11 50	708,434	227,932	
Moultrie	12,550	155	19,452	19	369,588	81	299,366	9 75	189,657	109,709	
Ogle	5,277	110	5,807	21	121,947	92	112,191	10 45	60,683	51,508	
Peoria	33,964	109	37,279	11	96,408	86	80,331	11 00	64,218	16,113	
Perry	8,246	97	7,999	19	410,099	82	340,357	9 55	356,014		15,657
Piatt	80,923	119	105,043	22	2,101,261	84	1,757,164	10 95	[illegible]	[illegible]	[illegible]
Pike	16,138	117	18,870	19	358,730	83	297,985	11 35	[illegible]	[illegible]	[illegible]

Rock Island	987	29	285	12	3,060	69	3,029	11 45	2,920	109	
Saline	19,305	110	21,235	9	191,115	7	147,158	7 70	163,509		16,351
Sangamon	39,606	143	56,859	23	1,307,757	80	1,046,206	11 60	659,564	386,642	
Schuyler	24,047	143	34,575	16	553,200	82	453,624	10 00	345,750	107,874	
Scott	23,966	97	23,462	24	563,088	78	439,209	11 20	262,774	176,435	
Shelby	41,968	148	62,112	22	1,366,464	80	1,093,171	10 95	680,126	413,045	
Stark	359	28	103	15	1,545	1 00	1,545	11 45	1,179	366	
St. Clair	124,182	104	129,149	20	2,582,980	83	2,143,873	14 25	1,840,373	303,500	
Stephenson	9,436	86	8,138	21	170,898	80	136,718	10 65	86,670	50,048	
Tazewell	15,326	132	20,383	20	407,660	80	326,128	10 85	221,155	104,973	
Union	25,137	111	27,940	12	335,280	75	251,460	†10 55	294,767		43,307
Vermilion	29,308	203	59,507	20	1,190,140	87	1,035,422	10 15	603,996	431,426	
Wabash	25,385	106	27,085	10	270,850	82	222,097	10 05	272,204		50,107
Warren	1,735	76	1,326	13	17,238	86	14,825	10 65	14,122	703	
Washington	83,021	99	82,813	18	1,490,634	75	1,117,975	9 65	799,145	318,830	
Wayne	36,245	122	44,400	13	577,200	77	444,444	9 60	426,240	18,004	
White	53,976	112	60,453	10	604,530	79	477,579	9 25	559,190		81,611
Whiteside	2,845	22	640	5	3,200	95	3,040	10 15	6,496		3,456
Will	769	95	732	11	8,052	1 00	8,052	11 15	8,162		110
Williamson	23,479	113	26,531	9	238,779	75	179,084	8 40	222,860		43,776
Winnebago	1,720	147	2,541	16	40,656	90	36,590	10 75	27,316	9,274	
Woodford	4,292	84	3,631	16	58,096	80	46,477	9 95	36,128	10,349	
Total	2,463,894	120	2,970,086	18	53,865,505	82	$44,457,428	10 55	$31,766,558	$13,448,984	$758,114

*Less acreage plowed up.
†Estimated.

SPRING WHEAT.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	336	†100	336	†9½	3,192	$†0.76	$2,426	$10 85	$3,646	.....	$1,220
Alexander	43	†100	43	†9½	408	†76	310	12 60	542	.....	232
Bond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boone	3,323	105	3,489	9	31,401	77	24,179	11 40	39,775	.....	15,596
Brown	87	†100	87	8	696	†76	529	10 60	922	.....	393
Bureau	18,492	98	18,122	7	126,854	82	104,020	10 00	181,220	.....	77,200
Calhoun	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carroll	6,502	83	5,397	8	43,176	90	38,858	11 75	63,415	.....	24,557
Cass	636	120	763	†9½	7,248	†76	5,508	11 25	8,584	.....	3,076
Champ'ign	852	†100	852	†9½	8,094	†76	6,151	11 25	9,585	.....	3,434
Christian	1,260	97	1,222	†9½	11,609	†76	8,823	10 95	13,381	.....	4,558
Clark	14	†100	14	†9½	133	†76	101	9 75	136	.....	35
Clay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton	1,039	†100	1,039	†9½	9,870	†76	7,501	11 45	11,896	.....	4,395
Coles	233	†100	233	11	2,563	†76	1,948	10 20	2,377	.....	429
Cook	3,716	104	3,865	11	42,515	80	34,012	10 15	39,230	.....	5,218
Crawford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberl'd	24	†100	24	†9½	228	†76	173	8 80	211	.....	38
DeKalb	7,952	87	6,918	7	48,426	65	31,479	11 50	79,557	.....	48,078
DeWitt	3,128	95	2,972	6	17,832	†76	13,552	9 45	28,085	.....	14,533
Douglas	342	95	324	5	1,620	60	972	9 35	3,029	.....	2,057
DuPage	3,291	103	3,389	†9½	32,195	†76	24,468	12 25	41,515	.....	17,047
Edgar	119	†100	119	†9½	1,130	†76	859	9 30	1,107	.....	248
Edwards	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Effingham	2	†100	2	†9½	19	†76	14	10 10	20	.....	6
Fayette	17	†100	17	†9½	161	†76	122	8 75	149	.....	27
Ford	348	†100	348	†9½	3,306	†76	2,512	9 35	3,254	.....	742
Franklin	25	†100	25	10	250	†76	190	8 65	216	.....	26
Fulton	8,319	118	9,816	6	58,896	70	41,227	10 75	105,522	.....	64,295
Gallatin	33	†100	33	†9½	313	†76	238	10 15	335	.....	97
Greene	110	†100	110	†9½	4,045	†76	794	11 25	1,237	.....	443
Grundy	404	100	404	12	4,848	†76	3,684	11 00	4,444	.....	760
Hamilton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hancock	4,073	106	4,317	14	60,438	75	45,328	11 10	47,919	.....	2,591
Hardin	43	†100	43	†9½	408	†76	310	9 45	406	.....	96
Henderson	6,464	93	6,011	9	54,099	80	43,279	9 75	58,307	.....	15,028
Henry	10,850	61	6,618	12	79,416	†76	60,356	11 00	76,107	.....	15,751
Iroquois	864	100	864	†9½	8,208	†76	6,238	9 25	7,992	.....	1,754
Jackson	119	†100	119	†9½	1,130	†76	859	9 65	1,148	.....	289
Jasper	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson	20	†100	20	†9½	190	†76	144	9 30	186	.....	42
Jersey	27	†100	27	†9½	256	†76	194	11 95	323	.....	129
JoDaviess	4,182	87	3,638	11	40,018	81	32,414	12 20	44,581	.....	11,970
Johnson	1	†100	1	10	10	†76	8	7 50	7	$1	.....
Kane	3,173	100	3,173	15	47,595	84	39,980	14 05	44,684	.....	4,601
Kankakee	2,049	76	1,557	8	12,456	60	7,474	10 10	15,726	.....	8,252
Kendall	2,020	93	1,878	8	15,024	80	12,019	12 30	23,099	.....	11,080
Knox	10,132	68	6,890	8	55,120	77	42,442	10 85	74,756	.....	32,314
Lake	2,412	98	2,363	14	33,082	90	29,774	11 40	26,938	2,836	.....
LaSalle	14,052	97	13,630	4	54,520	85	46,342	11 15	151,974	.....	105,632
Lawrence	500	†100	500	†9½	4,750	†76	3,610	11 00	5,500	.....	1,890
Lee	†36,269	96	34,818	12	417,816	75	313,362	11 25	391,702	.....	78,340
Livingston	3,517	100	3,517	†9½	33,411	†76	25,392	11 25	39,566	.....	14,174
Logan	2,612	86	2,246	9	20,214	70	14,150	10 30	23,134	.....	8,984
Macon	2,344	90	2,110	10	21,100	†76	16,036	9 85	20,783	.....	4,747
Macoupin	81	†100	81	†9½	769	†76	584	11 40	923	.....	339
Madison	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marion	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marshall	3,889	76	2,955	13	38,415	77	29,579	10 65	31,471	.....	1,892

Spring Wheat--Continued.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Mason	+852	+100	852	+9½	8,094	+$0 76	$6,151	$10 00	$8,520	.....	$2,369
Massac	6	+100	6	+9½	57	+76	43	11 75	70	.....	27
McDon'gh.	14,418	90	12,976	11	142,736	73	104,197	10 10	131,058	.....	26,861
McHenry	7,619	103	7,847	16	125,552	87	109,230	10 70	83,963	$25,267	.....
McLean	8,177	82	6,705	7	46,935	76	35,671	10 40	69,732	.....	34,061
Menard	525	110	577	+9½	5,481	65	3,563	10 30	5,943	.....	2,380
Mercer	14,699	83	12,2 0	8	97,600	65	63,440	10 20	124,440	.....	61,000
Monroe	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Montg'm'y	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Morgan	1,000	+100	1,000	10	10,000	+76	7,600	11 50	11,500	.....	3,900
Moultrie	129	90	116	11	1,276	+76	970	9 75	1,131	.....	161
Ogle	11,212	77	8,633	10	86,330	77	66,474	10 45	90,215	.....	23,741
Peoria	6,119	91	5,568	7	38,976	80	31,181	11 00	61,248	.....	30,067
Perry	10	+100	10	+9½	95	+76	72	9 55	95	.....	23
Piatt	721	100	721	8	5,768	60	3,461	10 65	7,679	.....	4,218
Pike	273	+100	273	+9½	2,593	+76	1,971	12 95	3,535	.....	1,564
Pope	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Pulaski	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Putnam	3,245	100	3,245	7	22,715	70	15,900	9 85	31,963	.....	16,063
Randolph	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Richland	5	+100	5	+9½	47	+76	36	9 95	50	.....	14
RockIsl'nd	7,830	90	7,047	12	84,564	86	72,725	11 45	80,688	.....	7,963
Saline	44	+100	44	+9½	418	+76	318	7 70	339	.....	21
Sangamon	1,519	105	1,594	15	23,910	70	16,737	11 60	18,490	.....	1,753
Schuyler	759	120	910	11	10,010	72	7,207	10 00	9,100	.....	1,893
Scott	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Shelby	242	+100	242	+9½	2,299	+76	1,747	10 95	2,650	.....	903
Stark	3,878	100	3,878	+9½	36,841	80	29,473	11 45	44,403	.....	14,930
St. Clair	131	+10	131	+9½	1,244	+76	945	14 25	1,867	.....	922
Steph'nson	12,070	72	8,690	13	112,970	76	85,857	10 65	92,548	.....	6,691
Tazewell	5,064	83	4,203	10	42,030	70	29,421	10 85	45,602	.....	16,181
Union	53	+100	53	+9½	503	+76	382	+10 55	559	.....	177
Vermilion	640	+100	640	+9½	6,080	+76	4,621	10 15	6,496	.....	1,875
Wabash	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Warren	10,999	97	10,669	7	74,683	72	53,772	10 65	113,625	.....	59,853
Washing'n	13	+100	13	+9½	123	+76	93	9 65	125	.....	32
Wayne	4	100	4	+9½	38	+76	29	9 60	38	.....	9
White	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Whiteside	12,378	105	12,996	5	64,980	82	53,284	10 15	131,909	.....	78,625
Will	3,113	101	3,144	11	34,584	89	30,780	11 15	35,056	.....	4,276
Williams'n	.....	....	.....	....	.....	.....	.....	.....	.....	.....	.....
Winneb'go	5,500	100	5,500	13	71,500	82	58,630	10 75	59,125	.....	495
Woodford	8,433	100	8,433	3	25,299	+76	19,227	9 95	83,908	.....	64,681
Total	312,020	91	286,264	9½	2,642,804	76	$2,039,732	$10 55	$3,087,992	$28,104	$1,076 364

WHEAT.

AMOUNT RAISED AND QUANTITY CONSUMED.

Counties.	Population, 1880.	Wheat per capita for seed and consumption	Wheat needed for seed and consumption	Wheat raised in 1880	Surplus	Deficit
Adams	59,325	5	296,625	830,135	533,510	
Alexander	14,726	5	73,630	103,732	30,102	
Bond	15,072	5	75,360	646,540	571,180	
Boone	11,555	5	57,775	56,899		876
Brown	12,881	5	64,405	484,736	420,331	
Bureau	33,201	5	166,005	131,474		34,531
Calhoun	8,456	5	42,280	510,240	467,939	
Carroll	17,298	5	86,490	238,301	151,811	
Cass	14,522	5	72,610	361,375	288,765	
Champaign	40,784	5	203,920	402,334	198,414	
Christian	28,270	5	141,350	2,069,634	1,928,284	
Clark	21,901	5	109,505	768,088	658,583	
Clay	16,272	5	81,360	518,608	437,248	
Clinton	19,817	5	99,085	1,543,974	1,444,880	
Coles	26,072	5	130,360	668,003	537,643	
Cook	606,801	5	3,034,005	46,923		2,987,082
Crawford	16,079	5	80,395	666,904	586,509	
Cumberland	13,764	5	68,820	369,428	300,608	
DeKalb	26,583	5	132,915	50,586		82,329
DeWitt	17,031	5	85,155	165,953	80,798	
Douglas	15,873	5	79,365	447,683	368,318	
DuPage	19,270	5	96,350	35,355		60,955
Edgar	25,520	5	127,600	805,893	678,293	
Edwards	8,605	5	43,025	340,132	297,107	
Effingham	19,138	5	95,690	656,101	560,411	
Fayette	21,098	5	105,490	911,841	806,351	
Ford	15,107	5	75,535	6,256		69,279
Franklin	15,815	5	79,075	283,280	204,205	
Fulton	41,303	5	206,515	795,036	588,521	
Gallatin	13,200	5	66,000	296,259	230,259	
Greene	23,030	5	115,150	1,393,477	1,278,327	
Grundy	16,735	5	83,675	5,648		78,027
Hamilton	15,890	5	79,450	404,800	325,350	
Hancock	35,499	5	177,495	507,686	330,191	
Hardin	6,287	5	31,435	43,743	12,308	
Henderson	10,844	5	54,220	91,170	36,950	
Henry	36,785	5	183,925	84,256		99,669
Iroquois	35,467	5	177,335	84,878		92,457
Jackson	22,800	5	114,000	463,757	349,757	
Jasper	14,531	5	72,655	406,848	334,193	
Jefferson	21,436	5	107,180	770,134	662,954	
Jersey	15,630	5	78,150	1,345,678	1,267,528	
JoDaviess	27,255	5	136,275	161,664	25,389	
Johnson	14,181	5	70,905	163,002	92,097	
Kane	46,537	5	232,685	50,875		181,810
Kankakee	26,500	5	132,500	47,091		85,409
Kendall	13,176	5	65,880	17,154		48,726
Knox	38,368	5	191,840	138,032		53,808
Lake	21,211	5	106,055	33,544		72,511
LaSalle	70,280	5	351,400	59,810		291,590
Lawrence	12,920	5	64,600	619,644	555,044	
Lee	28,006	5	140,030	417,816	277,786	
Livingston	38,885	5	194,425	39,841		154,584
Logan	25,255	5	126,275	517,935	391,660	
Macon	30,652	5	153,260	522,744	369,484	
Macoupin	37,606	5	188,030	2,975,793	2,787,763	
Madison	49,736	5	248,680	3,539,400	3,290,720	
Marion	23,670	5	118,350	770,480	652,130	

Wheat—Continued.

Counties.	Population 1880	Wheat per capita for seed and consumption	Wheat needed for seed and consumption	Wheat raised in 1880	Surplus	Deficit
all	15,137	5	75,685	49,593		26,092
t	16,228	5	81,140	187,758	106,618	
c	11,320	5	56,600	166,761	110,161	
nough	28,090	5	140,450	313,977	173,527	
ary	24,894	5	124,470	138,686	14,216	
an	60,130	5	300,650	279,635		21,015
d	13,035	5	65,175	365,474	300,299	
r	19,396	2	96,980	99,560	2,580	
e	13,595	5	67,975	1,624,168	1,556,193	
omery	28,161	5	140,805	3,326,664	3,185,859	
n	31,337	5	156,685	1,180,457	1,023,772	
rie	13,703	5	68,515	370,864	302,349	
	29,742	5	148,710	208,277	59,567	
	57,443	5	287,215	132,384		154,831
	15,995	5	79,975	410,164	330,189	
	15,593	5	77,965	157,749	79,784	
	32,097	5	160,485	2,103,553	1,943,068	
	13,140	5	65,700	188,700	123,000	
ti	10,000	5	50,000	98,832	48,832	
m	5,555	5	27,775	26,609		1,166
lph	25,570	5	127,850	1,241,268	1,113,418	
nd	15,900	5	79,500	374,096	294,596	
sland	38,320	5	191,600	87,624		103,976
	15,764	5	78,820	191,533	112,713	
mon	52,941	5	264,705	1,331,667	1,066,962	
ler	16,704	5	83,520	563,210	479,690	
	10,749	5	53,745	563,088	509,343	
y	30,290	5	151,450	1,368,763	1,217,313	
	11,220	5	56,100	38,386		17,714
ir	61,210	5	306,050	2,584,224	2,278,174	
enson	31,987	5	159,935	283,868	123,933	
ell	29,896	5	149,480	449,690	300,210	
	18,111	5	90,555	335,783	245,228	
lion	41,588	5	207,940	1,196,220	988,280	
sh	9,919	5	49,595	270,850	221,255	
n	22,898	5	114,490	91,921		22,569
ngton	21,300	5	106,500	1,490,757	1,384,257	
e	21,377	5	106,885	577,238	470,353	
	23,028	5	115,140	604,530	489,390	
side	30,869	5	154,345	68,180		86,165
	51,980	5	259,900	42,636		217,264
mson	20,784	5	103,920	238,779	134,859	
bago	30,414	5	152,070	112,156		39,914
ord	21,495	5	107,475	83,395		24,080
l	3,083,416	5	15,417,080	56,508,309	46,199,698	5,108,469

OATS.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre, in bushels	Total yield in bushels	Price per bush.	Value of crop.	Cost of production, per acre	Total cost of production	Profit on crop.	Loss on crop.
Adams	22,550	97	21,873	38	831,174	20	$166,235	$9 90	$216,543	.....	$50,308
Alexander	597	91	543	20	10,860	28	3,041	8 35	4,534	.....	1,493
Bond	†9,294	85	7,900	30	237,000	19	45,030	8 30	65,570	.....	20,540
Boone	21,668	106	22,968	41	941,688	21	197,754	10 90	250,351	.....	52,597
Brown	4,307	96	4,135	36	148,860	17	25,306	9 45	39,076	.....	13,770
Bureau	30,330	103	31,240	41	1,280,840	18	230,551	9 85	307,714	.....	77,163
Calhoun	1,216	100	1,216	35	42,560	†21	8,938	11 75	14,288	.....	5,350
Carroll	24,953	105	26,201	45	1,179,045	20	235,809	10 85	284,281	.....	48,472
Cass	6,107	135	8,244	40	329,760	15	49,464	10 40	85,738	.....	36,271
Champaign	35,468	100	35,468	21	744,828	18	134,069	10 10	358,227	.....	224,158
Christian	20,651	73	15,075	33	497,475	16	79,596	9 75	146,98.	.....	67,385
Clark	8,469	98	8,300	40	332,000	12	39,840	7 45	61,835	.....	21,995
Clay	6,983	100	6,938	36	251,388	17	42,736	9 05	63,196	.....	20,460
Clinton	15,709	105	16,494	26	428,844	18	77,192	8 45	139,374	.....	62,182
Coles	10,885	78	8,490	35	297,150	18	53,487	9 25	78,532	.....	25,045
Cook	54,302	101	54,845	32	1,755,040	22	386,109	11 35	622,491	.....	236,382
Crawford	8,764	112	9,816	25	245,400	†21	51,534	6 50	63,804	.....	12,270
Cumberland	8,127	105	8,533	28	238,924	20	47,785	7 80	66,557	.....	18,772
DeKalb	47,484	99	47,009	37	1,739,333	13	330,473	10 95	514,748	.....	184,275
DeWitt	13,805	103	14,219	25	355,475	20	71,095	9 20	130,815	.....	59,720
Douglas	9,919	102	10,117	25	252,925	18	45,526	8 60	87,006	.....	41,480
DuPage	30,439	102	31,048	28	931,440	22	204,917	11 60	360,157	.....	155,240
Edgar	13,307	93	12,375	30	346,500	18	62,370	8 50	105,187	.....	42,817
Edwards	2,539	97	2,463	21	51,723	†21	10,862	9 20	22,660	.....	11,798
Effingham	14,527	105	15,253	42	640,626	15	96,094	8 85	134,989	.....	38,895
Fayette	11,416	102	11,644	32	372,608	†21	78,248	7 40	86,166	.....	7,918
Ford	13,640	105	14,322	35	501,270	21	105,267	8 50	121,737	.....	16,470
Franklin	4,080	100	4,080	22	89,760	35	31,416	6 90	28,152	3,264	.....
Fulton	19,027	118	22,452	35	785,820	21	165,022	10 05	225,643	.....	60,621
Gallatin	1,499	70	1,049	25	26,225	20	5,245	10 55	11,067	.....	5,822
Greene	3,547	100	3,547	40	141,880	25	35,470	11 75	41,677	.....	6,207
Grundy	10,492	100	11,121	41	455,961	19	86,632	10 80	120,107	.....	33,475
Hamilton	3,999	93	2,799	26	72,774	17	12,327	6 80	18,995	.....	6,631
Hancock	33,058	110	36,364	42	1,527,288	18	274,912	8 90	323,540	.....	48,628
Hardin	1,536	100	1,536	16	24,576	20	6,890	8 20	13,595	.....	6,705
Henderson	10,292	102	10,600	42	445,200	17	75,684	9 15	97,119	.....	21,435
Henry	27,817	107	29,744	41	1,220,104	[illegible]	1[illegible],924	12 20	1[illegible],[illegible]	.....	1[illegible],911
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.....	[illegible]

JoDaviess	30,347	100	30,347	37	1,122,839	21	235,796	10 60	[illegible]	.....	[illegible]	
Johnson	1,716	80	1,373	20	27,460	25	6,865	6 65	9,130	.....	2,265	
Kane	29,710	101	30,007	48	1,440,336	22	616,874	11 65	349,581	.....	32,707	
Kankakee	28,572	103	29,429	30	882,870	20	176,574	9 25	272,218	.....	95,644	
Kendall	18,879	105	19,823	35	693,805	19	131,823	11 15	221,026	.....	89,203	
Knox	32,253	113	36,446	47	1,712,962	19	325,463	10 25	373,571	.....	48,108	
Lake	22,679	98	22,225	43	955,675	25	238,919	10 25	227,806	11,113	.....	
LaSalle	49,004	97	47,534	40	1,901,360	21	399,286	10 05	477,717	.....	78,431	
Lawrence	3,700	85	3,145	26	81,770	20	16,354	9 25	29,091	.....	12,737	
Lee	†18,922	101	19,182	38	728,916	19	138,494	9 90	189,902	.....	51,408	
Livingston	46,795	111	51,942	25	1,298,550	18	233,739	9 80	509,032	.....	275,293	
Logan	17,313	100	17,313	30	519,390	18	93,490	9 45	163,608	.....	70,118	
Macon	18,782	94	17,655	34	600,270	19	114,051	9 25	163,309	.....	49,258	
Macoupin	18,407	108	19,879	39	775,281	25	193,820	9 05	179,905	13,915	.....	
Madison	13,196	87	11,480	31	355,880	26	92,529	10 35	118,818	.....	26,289	
Marion	11,419	88	10,049	20	200,980	18	36,176	6 95	69,840	.....	33,664	
Marshall	18,459	105	19,382	43	833,426	21	175,019	11 65	225,800	.....	50,781	
Mason	†6,711	100	6,711	25	167,775	20	33,555	8 95	60,063	.....	26,508	
Massac	1,129	103	1,163	21	24,423	25	6,106	10 35	12,037	.....	5,931	
McDonough	23,654	107	25,310	40	1,012,400	20	202,480	9 90	250,569	.....	48,089	
McHenry	35,065	107	37,519	43	1,613,317	22	354,930	9 65	362,058	.....	7,128	
McLean	57,334	93	53,321	31	1,652,951	19	344,061	9 60	511,882	.....	197,821	
Menard	8,839	95	8,397	38	319,086	18	57,435	9 85	82,710	.....	25,275	
Mercer	18,011	103	18,371	40	734,840	19	139,620	9 65	177,280	.....	37,660	
Monroe	5,747	100	5,747	35	201,145	30	60,343	12 10	69,539	.....	9,196	
Montgomery	21,566	62	13,371	37	494,727	18	89,051	7 80	104,294	.....	15,243	
Morgan	10,160	100	10,160	42	426,720	†21	89,611	10 80	109,728	.....	20,117	
Moultrie	9,901	95	9,406	28	263,368	19	50,040	8 60	80,892	.....	30,852	
Ogle	54,205	100	54,205	40	2,168,200	24	520,368	9 85	533,919	.....	13,551	
Peoria	29,210	100	30,962	41	1,269,442	23	291,972	11 15	345,226	.....	53,254	
Perry	5,231	90	5,022	18	90,396	25	22,599	9 30	46,705	.....	24,106	
Piatt	17,746	109	19,165	33	632,445	17	107,616	10 65	204,107	.....	96,591	
Pike	6,081	97	5,898	36	212,328	30	63,698	12 75	75,192	.....	11,501	
Pope	4,092	95	3,887	32	124,384	†21	26,121	7 20	27,986	.....	1,865	
Pulaski	620	100	620	28	17,360	27	4,687	8 95	5,549	.....	862	
Putnam	4,571	104	4,754	40	190,160	20	38,032	10 45	49,679	.....	11,647	
Randolph	10,522	99	10,417	30	312,510	25	78,127	10 10	105,212	.....	27,085	
Richland	5,923	92	5,449	15	81,735	20	16,347	8 30	45,227	.....	28,880	
Rock Island	11,800	109	12,862	43	553,066	18	99,552	10 80	138,910	.....	39,358	
Saline	2,172	100	2,172	20	43,440	20	8,688	6 05	13,141	.....	4,453	
Sangamon	13,855	92	12,746	33	420,618	20	84,124	10 10	128,735	.....	44,611	
Schuyler	6,635	96	6,369	38	242,022	17	41,144	9 35	59,550	.....	18,406	
Scott	566	96	543	35	19,005	30	5,701	10 00	5,430	271	.....	
Shelby	17,850	91	16,243	33	536,019	17	91,123	10 15	164,866	.....	73,743	
Stark	13,033	100	13,033	42	547,386	25	136,846	10 75	140,105	.....	3,259	
St. Clair	12,270	100	12,270	33	404,910	25	101,227	11 70	143,559	.....	42,332	
Stephenson	35,622	100	35,622	35	1,246,740	23	286,757	9 95	354,439	.....	67,682	
Tazewell	27,780	97	26,946	30	808,380	21	169,760	10 00	269,460	.....	99,700	

Oats—Continued.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre, in bushels	Total yield, in bushels	Price per bush.	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Union	4,332	100	4,332	12	51,984	†21	$10,917	†$9 40	$40,721	.....	$29,804
Vermilion	19,71	92	18,136	14	253,904	15	38,086	9 05	164,131	.....	126,045
Wabash	1,806	82	1,481	25	37,025	20	7,405	8 55	12,662	.....	5,257
Warren	28,662	102	29,235	45	1,315,575	17	223,648	10 30	301,120	.....	77,472
Washington	17,739	97	17,207	40	688,280	30	206,484	8 00	137,656	$68,828	.....
Wayne	9,297	88	8,181	19	155,439	27	41,668	7 85	64,221	.....	22,253
White	3,650	95	3,467	15	52,005	25	13,001	7 20	24,962	.....	11,961
Whiteside	27,573	110	30,330	50	1,516,500	20	303,300	11 30	342,729	.....	39,429
Will	67,462	105	70,835	46	3,258,410	21	684,266	9 90	701,266	.....	17,000
Williamson	3,201	100	3,201	18	57,618	†21	12,100	7 25	23,207	.....	11,107
Winnebago	42,949	98	42,090	38	1,599,420	22	351,872	10 10	425,109	.....	73,237
Woodford	34,837	100	34,837	40	1,393,480	20	278,696	10 80	376,240	.....	97,544
Total	1,738,840	101	1,749,391	35	62,709,002	24	$12,858,247	$9 40	$17,375,108	$97,391	$4,614,252

†Estimated.

Counties.	Acreage returned by assessors 1879	Per cent. of increase or decrease	Acreage 1880	Yield per acre in tons	Total yield in tons	Price per ton	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	27,478	93	25,554	1½	38,331	$9 35	$358,395	$8 75	$223,597	$134,798	
Alexander	544	100	544	2	1,088	9 75	10,608	7 45	4,053	6,555	
Bond	†15,787	86	13,577	1¼	16,971	7 75	131,525	6 20	84,177	47,348	
Boone	24,903	96	23,906	1¼	29,882	5 85	174,810	7 90	188,857		$14,047
Brown	9,419	100	9,419	2	18,838	4 60	86,655	5 45	51,333	35,322	
Bureau	44,122	100	44,122	1½	66,183	5 20	344,152	7 50	330,905	13,237	
Calhoun	2,187	95	2,077	†1½	3,115	10 00	31,150	9 20	19,108	12,042	
Carroll	26,959	75	20,219	1¾	35,383	7 00	247,681	6 25	126,369	121,312	
Cass	4,312	98	4,255	1½	6,382	7 00	44,674	10 15	43,188	1,486	
Champaign	34,658	100	34,658	1¼	43,322	5 00	216,610	5 75	199,283	17,327	
Christian	31,161	106	33,030	1¾	57,802	5 75	332,361	7 00	231,210	101,151	
Clark	15,891	96	15,255	1½	22,882	5 00	114,410	7 35	112,124	2,286	
Clay	25,917	95	24,621	1	24,621	4 65	114,488	6 35	156,343		41,855
Clinton	10,884	86	9,360	1½	14,040	9 50	133,380	6 00	56,160	77,220	
Coles	20,028	86	17,224	1¼	21,530	5 00	107,650	7 15	123,152		15,502
Cook	105,262	96	101,023	1¼	126,279	9 35	1,180,709	7 60	767,775	412,934	
Crawford	11,963	97	11,604	1½	17,406	5 00	87,039	6 05	70,204	16,826	
Cumberland	13,793	100	13,793	1¾	24,138	5 65	136,380	5 00	68,965	67,415	
DeKalb	68,841	100	68,841	1½	103,261	6 25	645,381	7 50	516,307	129,074	
DeWitt	13,562	99	13,426	1½	20,139	7 50	151,042	6 35	85,255	65,787	
Douglas	17,723	96	17,014	1	17,014	6 00	102,084	6 25	106,337		4,253
DuPage	38,723	83	32,140	1½	48,210	9 00	433,890	10 45	335,863	98,027	
Edgar	27,610	98	27,058	1½	40,587	5 75	233,375	7 00	189,406	43,969	
Edwards	8,086	93	7,520	1½	11,280	5 25	59,220	7 20	54,144	5,076	
Effingham	17,513	100	17,513	1¾	30,648	6 35	194,615	6 10	106,829	87,786	
Fayette	14,626	109	15,942	1½	23,913	6 75	161,413	6 55	104,420	56,893	
Ford	21,978	97	21,319	1½	31,978	4 10	131,110	5 30	112,991	18,119	
Franklin	3,741	98	3,609	1½	5,503	9 30	51,178	5 25	19,262	31,916	
Fulton	31,318	93	20,153	1½	43,729	6 00	262,374	7 60	221,563	40,811	
Gallatin	2,969	95	2,820	1¼	3,525	12 00	42,300	9 40	26,508	15,792	
Greene	12,557	121	15,194	1¼	18,992	6 65	126,297	8 50	129,149		2,852
Grundy	28,871	107	30,892	1½	46,338	4 85	224,739	6 65	205,431	19,308	
Hamilton	5,521	98	5,410	2¼	12,172	8 35	101,636	3 70	20,017	81,619	
Hancock	36,837	92	33,890	1¼	42,362	6 10	258,408	6 75	228,757	20,651	
Hardin	2,165	100	2,165	3	6,495	11 00	71,445	7 85	16,995	54,450	
Henderson	10 055	93	9,351	2	18,702	6 00	112,212	7 80	72,9 8	39,274	
Henry	43,976	97	42,657	1¾	74,650	7 25	541,212	9 05	386,046	155,166	
Iroquois	53,989	95	51,289	1½	76,933	5 00	384,665	6 10	312,863	71,802	

Hay—Continued.

Counties.	Acreage returned by assessors 1879	Per cent. of increase or decrease	Acreage 1880	Yield per acre in tons	Total yield in tons	Price per ton	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Jackson	5,883	98	5,765	1¾	10,089	$10 00	$100,890	$7 10	$40,931	$59,959	.....
Jasper	12,827	102	13,083	1¼	16,354	5 50	89,947	5 65	73,919	16,028	.....
Jefferson	8,804	97	8,540	1	8,540	6 30	54,802	5 55	47,397	7,405	.....
Jersey	7,969	120	9,563	2	19,126	7 65	146,314	8 95	85,589	60,725	.....
Jo Daviess	35,451	90	31,906	1¼	39,882	8 35	333,015	7 65	244,081	88,934	.....
Johnson	4,027	100	4,027	1	4,027	10 00	40,270	7 05	28,390	11,880	.....
Kane	52,553	99	52,027	1½	78,040	6 00	468,240	6 80	355,784	112,456	.....
Kankakee	47,584	91	43,301	1¾	75,777	6 75	511,495	5 60	242,486	269,009	.....
Kendall	31,088	100	31,088	2	62,176	6 00	373,056	9 00	279,792	93,264	.....
Knox	40,736	100	40,736	1½	61,104	7 00	427,728	7 70	313,667	114,061	.....
Lake	45,240	91	41,176	1½	61,764	5 60	345,878	7 35	302,643	43,235	.....
LaSalle	79,299	100	79,299	1¾	138,773	6 60	915,902	8 65	685,936	229,966	.....
Lawrence	8,337	91	7,586	1½	11,379	5 00	56,895	6 60	50,067	6,823	.....
Lee	†35,644	86	30,654	2	61,308	6 25	383,175	7 65	234,503	148,672	.....
Livingston	59,834	110	65,817	1¾	115,180	5 00	575,900	7 00	460,719	115,181	.....
Logan	13,651	100	13,651	1½	20,476	5 80	118,761	7 45	101,700	17,061	.....
Macon	16,071	100	16,071	1½	24,106	6 50	156,689	8 95	143,835	12,854	.....
Macoupin	29,220	105	30,681	1½	46,021	6 00	206,126	6 65	204,029	72,097	.....
Madison	15,204	93	14,140	1½	21,210	10 75	228,007	10 10	142,814	85,193	.....
Marion	14,820	111	16,450	†1½	24,675	8 00	197,400	4 60	75,670	121,730	.....
Marshall	16,920	97	16,412	1¾	28,721	5 50	157,965	11 50	188,738	.....	$30,773
Mason	†2,876	101	2,905	1¾	5,084	8 35	42,454	9 25	26,871	15,580	.....
Massac	2,868	106	3,040	1¼	3,800	14 00	53,200	6 90	20,976	32,224	.....
McDonough	22,338	93	20,774	1¾	36,354	4 65	169,046	7 25	150,611	18,435	.....
McHenry	62,270	96	59,779	1½	89,668	5 65	506,624	6 60	394,541	112,083	.....
McLean	54,631	94	51,353	1¾	89,868	4 75	426,873	7 50	385,147	41,726	.....
Menard	8,530	97	8,274	1¾	14,479	6 50	94,113	7 75	64,123	29,990	.....
Mercer	22,838	100	22,838	1¾	39,966	5 65	225,808	7 85	179,278	46,530	.....
Monroe	6,656	100	6,656	1½	9,984	9 00	89,856	9 50	63,232	26,624	.....
Montgomery	28,926	88	25,455	1½	38,182	5 60	213,819	6 70	170,548	43,271	.....
Morgan	36,244	93	33,707	1¾	58,988	7 00	412,916	10 35	348,867	64,049	.....
Moultrie	9,679	95	9,195	1½	13,792	5 30	73,098	6 50	59,767	13,331	.....
Ogle	42,772	100	42,772	1¾	74,851	5 00	374,255	7 50	320,790	53,465	.....
Peoria	30,794	116	35,721	1½	53,581	7 35	393,820	8 85	316,131	77,689	.....
Perry	2,533	103	2,609	1¼	3,261	8 35	27,229	6 15	16,045	11,184	.....
Platt	13,614	98	13,342	1¼	16,677	5 25	87,554	7 35	98,064	.....	10,510
Pike	16,496	88	14,516	1¾	25,403	8 60	248,466	7 25	105,241	113,225	.....
Pope	2,793	96	2,681	1	2,681	15 00	40,215	6 70	17,963	22,252	.....

Richland	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.....
Rock Island	23,694	94	22,272	2	44,544	7 80	347,413	8 10	180,405	107,040	.....
Saline	3,233	90	2,910	2	5,820	12 00	69,840	6 15	17,896	51,944	.....
Sangamon	24,561	93	22,842	1¾	39,973	6 50	259,824	10 95	250,120	9,704	.....
Schuyler	12,791	97	12,407	1¾	21,712	5 00	108,560	6 70	83,127	25,433	.....
Scott	4,598	97	4,460	2½	11,150	7 25	80,837	6 45	28,767	52,070	.....
Shelby	26,242	92	24,142	1¾	42,248	5 40	228,179	7 75	187,100	41,039	.....
Stark	12,564	100	12,564	1½	18,846	6 20	116,845	7 55	94,858	21,987	.....
St. Clair	12,287	96	11,795	1¾	20,641	12 00	258,012	12 25	144,489	113,523	.....
Stephenson	33,753	96	32,403	1½	48,604	8 25	400,983	6 35	205,759	195,224	.....
Tazewell	24,368	102	24,855	1¾	43,496	6 50	282,724	7 70	191,383	91,341	.....
Union	4,739	100	4,739	1½	7,108	12 00	85,296	†7 35	34,832	50,464	.....
Vermilion	39,047	90	35,142	1½	52,713	5 35	282,014	6 65	233,694	48,320	.....
Wabash	5,545	96	5,323	1½	7,984	6 25	49,900	7 10	37,793	12,107	.....
Warren	23,262	92	21,401	1¼	26,751	6 00	160,506	7 25	155,157	5,349	.....
Washington	4,818	100	4,818	1½	7,227	7 00	50,589	5 85	28,185	22,404	.....
Wayne	19,819	96	19,026	1	19,026	5 35	101,789	6 50	123,669	.....	21,880
White	8,366	103	8,617	1½	12,925	8 00	103,400	6 30	54,287	49,113	.....
Whiteside	40,723	95	38,687	1½	58,030	5 00	290,150	6 50	251,465	38,685	.....
Will	80,596	101	81,402	1½	122,103	7 75	946,298	6 80	553,533	392,765	.....
Williamson	4,273	90	3,846	2	7,692	8 00	61,536	6 80	26,153	35,383	.....
Winnebago	32,272	97	31,304	1	31,304	7 20	225,389	6 60	206,606	18,783	.....
Woodford	24,525	101	24,770	1¾	43,347	5 50	238,408	7 95	196,921	41,487	.....
Total	2,332,278	96	2,259,857	1½	3,486,584	$6 50	$22,589,691	$7 35	$16,676,706	$6,979,549	$166,564

†Estimated.

RYE.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	715	100	715	13	9,295	57	$5,298	$9 35	$6,685		$1,387
Alexander	4	100	4	*17	68	*56	38	11 10	44		6
Bond											
Boone	1,447	122	1,765	21	37,065	61	22,610	10 25	18,091	$4,519	
Brown	409	75	306	14	4,284	60	2,570	10 05	3,075		505
Bureau	1,700	106	1,802	16	28,832	55	15,858	9 90	17,840		1,982
Calhoun	6	*100	6	*17	102	*56	57	14 00	84		27
Carroll	5,082	95	4,828	20	96,560	50	48,280	11 45	55,281		7,001
Cass	508	100	508	*17	8,636	*56	4,836	10 10	5,131		295
Champaign	3,378	85	2,871	19	54,549	46	25,092	11 05	31,724		6,632
Christian	899	55	494	20	9,880	41	4,051	10 75	5,310		1,259
Clark	225	85	191	16	3,056	55	1,681	9 75	1,862		181
Clay	225	100	225	10	2,250	40	900	10 75	2,419		1,519
Clinton	39	190	74	12	888	*56	497	8 60	636		139
Coles	281	90	253	11	2,783	55	1,531	8 95	2,264		733
Cook	1,046	106	1,098	20	21,900	60	13,176	11 00	12,078	1,098	
Crawford	99	100	99	18	1,782	*56	998	*9 80	970	28	
Cumberland	353	75	265	10	2,650	50	1,325	8 85	2,345		1,020
DeKalb	806	100	806	18	14,508	64	9,285	10 85	8,745	540	
DeWitt	2,601	100	2,601	16	41,616	55	22,889	9 55	24,839		1,950
Douglas	907	96	871	16	13,936	50	6,968	9 10	7,926		958
DuPage	1,620	95	1,539	*17	26,163	60	15,698	12 05	18,545		2,847
Edgar	449	100	449	15	6,735	60	4,041	*9 80	4,400		359
Edwards											
Effingham	407	100	407	17	6,919	*56	3,875	9 15	3,724	151	
Fayette	376	80	301	11	3,311	*56	1,854	7 35	2,212		358
Ford	1,160	80	928	*17	15,776	*56	8,854	7 90	7,331	1,503	
Franklin	16	60	8	*17	136	*56	76	*9 80	78		2
Fulton	8,537	80	6,829	22	150,238	54	81,128	9 95	67,948	13,180	
Gallatin	41	100	41	*17	697	*56	390	9 40	385	5	
Greene	47	*100	47	*17	799	*56	447	*9 80	461		14
Grundy	1,865	90	1,678	15	25,170	57	14,347	11 65	19,549		5,202
Hamilton	27	80	21	12	252	*56	141	6 70	141		
Hancock	3,097	87	2,694	18	48,492	55	26,671	9 05	24,381	2,290	
Hardin	35	*100	35	12	420	50	210	8 75	306		96
Henderson	3,587	80	2,869	20	57,380	55	31,559	9 55	27,399	4,160	
Henry	4,145	110	4,559	20	91,180	55	50,149	11 90	54,252		4,103
Iroquois	3,628	100	3,628	15	54,420	*56	30,475	8 35	30,294	181	
Jackson	80	*100	80	*17	1,360	*56	762	10 15	812		50
Jasper	212	100	212	16	3,392	50	1,696	7 15	1,516	180	
Jefferson	99	100	99	18	1,782	70	1,247	8 05	797	450	
Jersey	11	90	10	*17	170	*56	95	*9 80	98		3
JoDaviess	2,683	80	2,146	17	36,482	50	18,241	9 90	21,245		3,004
Johnson	9	*100	9	*17	153	*56	86	9 35	84	2	
Kane	1,495	100	1,495	22	32,890	69	22,694	12 30	18,388	4,306	
Kankakee	3,129	75	2,347	12	28,164	45	12,674	9 60	22,531		9,857
Kendall	277	115	318	12	3,816	60	2,290	11 95	3,800		1,510
Knox	4,973	95	4,724	20	94,480	47	44,406	10 15	47,949		3,543
Lake	501	90	451	17	7,667	60	4,600	10 45	4,713		113
LaSalle	3,252	100	3,252	12	39,024	60	23,414	10 65	34,634		11,220
Lawrence	107	120	128	20	2,560	65	1,664	6 85	877	787	
Lee											
Livingston	6,405	100	6,405	14	89,670	*56	50,515	10 25	6,651		15,636
Logan	2,022	78	1,577	21	33,117	50	16,558	9 45	14,903	1,655	
Macon	1,499	80	1,199	19	22,781	60	13,669	9 55	11,450	2,219	
Macoupin	200	100	200	30	6,000	*56	3,360	*9 80	1,960	1,400	
Madison	56	100	56	25	1,400	53	742	12 95	725	17	
Marion	509	87	443	17	7,531	75	5,648	6 70	2,968	2,680	
Marshall	2,285	98	2,239	14	31,346	54	16,927	11 45	25,636		8,709

Rye—Continued.

ties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	3	*100	3	*17	51	*56	$28	*$9 80	$29	.....	$1
ough..	5,760	75	4,320	22	95,040	52	49,421	10 15	43,848	$5,573	.....
ry.....	1,080	100	1,080	16	17,280	67	11,578	9 00	9,720	1,858	.....
l	8,823	93	8,205	18	147,690	55	81,229	9 30	76,306	4,923	.....
.....	325	100	325	*17	5,525	60	3,315	9 05	2,941	374	.....
.....	3,131	100	3,131	23	72,013	50	36,006	9 90	30,997	5,009	.....
.....	27	90	24	*17	408	*56	228	12 40	298	.....	70
mery.	1,561	75	1,171	20	23,420	47	11,007	8 50	9,953	1,054	.....
.....	5,023	*100	5,023	*17	85,391	*56	47,819	10 15	50,983	.....	3,164
e	493	100	493	16	7,888	55	4,338	8 20	4,043	295	.....
.....	4,052	100	4,052	20	81,040	61	49,434	9 60	38,899	10,535	.....
.....	7,761	75	5,821	20	116,420	61	71,016	10 75	62,576	8,440	.....
.....	23	100	23	*17	391	*56	219	10 65	245	.....	26
.....	2,036	83	1,690	21	35,490	53	18,810	10 35	17,491	1,319	.....
.....	160	90	144	19	2,736	65	1,778	9 75	1,404	374	.....
.....	20	*100	20	*17	340	*56	190	9 80	196	.....	6
l.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
n.....	928	96	891	16	14,256	55	7,841	9 70	8,643	.....	802
ph.....	16	100	16	20	320	60	192	10 60	170	22	.....
nd	11	100	11	10	110	*56	62	7 40	81	.....	19
sland..	3,240	96	3,110	19	59,090	49	28,954	10 75	33,432	.....	4,478
.....	4	*100	4	8	32	80	26	7 05	28	.....	2
non....	1,707	86	1,468	19	27,892	55	15,341	9 50	13,946	1,395	.....
er.....	656	98	643	20	12,860	56	7,202	8 95	5,755	1,447	.....
.....	60	90	54	*17	918	*56	514	10 30	556	.....	42
.....	1,102	100	1,102	21	23,142	52	12,034	10 35	11,406	628	.....
.....	1,162	120	1,394	21	29,274	50	14,637	10 90	15,195	.....	558
r	17	100	17	*17	289	*56	162	*9 80	167	.....	5
nson..	9,827	87	8,549	22	188,078	59	110,966	10 15	86,772	24,194	.....
ell.....	5,151	85	4,378	18	78,804	61	48,070	9 95	43,561	4,509	.....
.....	4	*100	4	*17	68	*56	38	*9 80	39	.....	1
ion	1,146	76	871	*17	14,807	*56	8,292	9 15	7,970	322	.....
h	42	100	42	*17	714	*56	400	*9 80	412	.....	12
n.	1,751	96	1,681	18	30,258	46	13,919	10 10	16,978	.....	3,059
ngton..	75	110	82	25	2,050	50	1,025	8 60	705	320	.....
.....	103	100	103	*17	1,751	*56	980	*9 80	1,009	.....	29
.....	16	120	19	*17	323	*56	181	8 00	152	29	.....
ide	5,760	50	2,880	25	72,000	52	37,440	11 00	31,680	5,760	.....
.....	1,414	108	1,527	15	22,905	70	16,033	10 15	15,499	534	.....
nson...	10	100	10	*17	170	*56	95	*9 80	98	.....	3
bago...	8,413	90	7,572	14	106,008	60	63,605	10 00	75,720	.....	12,115
ord	4,451	103	4,584	16	73,344	55	40,339	10 00	45,840	.....	5,501
al.....	166,915	89	149,742	17	2,737,159	56	$1,513,587	$9 80	$1,515,235	$120,265	$121,913

imated.

BARLEY.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bus.	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Adams	86	$100	86	$27	2,322	70	$1,625	$8 95	$770	$855	.....
Boone	487	90	438	15	6,570	$56	3,679	10 90	4,774	.....	$1,095
Bureau	1,560	100	1,560	22	34,520	$56	19,219	10 50	16,380	2,839	.....
Carroll	5,021	103	5,172	24	124,128	$56	69,512	10 15	52,496	17,016	.....
Cass	20	$100	20	$27	540	$56	302	11 30	226	76	.....
Christian	293	100	293	$27	7,911	$56	4,430	9 30	2,725	1,705	.....
Clinton	10	$100	10	$27	270	$56	155	$10 55	105	46	.....
Coles	80	$100	80	31	2,480	$56	1,389	$10 55	844	545	.....
Cook	193	$100	193	$27	5,211	76	3,960	9 10	1,756	2,204	.....
Crawford	10	$100	10	$27	270	$56	151	$10 55	105	46	.....
Cumberland	17	$100	17	$27	459	$56	257	$10 55	179	78	.....
DeKalb	2,576	68	1,751	25	43,775	68	29,767	11 05	19,348	10,419	.....
DeWitt	19	$100	19	$27	513	$56	287	$10 55	200	87	.....
Douglas	21	$100	21	$27	567	$56	317	$10 55	221	96	.....
DuPage	135	$100	135	$27	3,645	$56	2,041	12 30	1,660	381	.....
Edgar	19	$100	19	$27	513	$56	287	$10 55	200	87	.....
Edwards	7	$100	7	$27	189	$56	106	$10 55	74	32	.....
Effingham	7	$100	7	$27	189	$56	106	$10 55	74	32	.....
Ford	41	$100	41	$27	1,107	$56	620	9 10	373	247	.....
Franklin	10	$100	10	20	200	35	70	$10 55	105	.....	35
Fulton	93	$100	93	$27	2,511	$56	1,406	$10 55	981	425	.....
Grundy	77	$100	77	20	1,540	$56	862	12 85	989	.....	127
Hancock	10	100	10	$27	270	50	135	$10 55	105	30	.....
Henderson	53	$100	53	40	2,120	$56	1,187	$10 55	559	628	.....
Henry	743	90	669	25	16,725	$56	9,366	13 25	8,864	502	.....
Iroquois	129	$100	129	$27	3,483	$56	1,950	9 10	1,174	776	.....
Jackson	79	$100	79	$27	2,133	$56	1,194	10 90	861	333	.....
Jefferson	28	$100	28	30	840	$56	470	$10 55	295	175	.....
JoDaviess	881	$100	881	25	22,025	50	11,012	9 60	8,458	2,554	.....
Kane	458	110	504	22	11,088	70	7,762	12 00	6,048	1,714	.....
Kankakee	227	$100	227	$27	6,129	50	3,064	10 95	2,486	578	.....
Kendall	35	95	33	$27	891	65	579	11 85	391	188	.....
Knox	178	$100	178	$27	4,806	$56	2,691	11 70	2,083	608	.....
Lake	113	100	113	25	2,825	60	1,695	10 45	1,181	514	.....
LaSalle	908	80	726	$27	19,602	$56	10,977	11 15	8,095	2,882	.....
Lawrence	182	$100	182	$27	4,914	$56	2,752	8 30	1,511	1,241	.....
Livingston	61	$100	61	$27	1,647	$56	922	10 55	643	279	.....
Logan	193	$100	193	$27	5,211	$56	2,918	12 05	2,326	592	.....
Macon	86	$100	86	$27	2,322	$56	1,300	9 55	821	479	.....
Macoupin	20	$100	20	$27	540	$56	302	$10 55	211	91	.....
McHenry	765	75	574	30	17,220	55	9,471	7 20	4,113	5,338	.....
McLean	349	$100	349	$27	9,423	$56	5,277	9 40	3,281	1,996	.....
Menard	80	$100	80	40	3,200	80	2,560	$10 55	844	1,716	.....
Mercer	55	100	55	$27	1,485	$56	832	$10 55	580	252	.....
Monroe	87	100	87	35	3,045	$56	1,705	11 70	1,018	687	.....
Montgomery	46	75	34	$27	918	$56	514	8 40	286	228	.....
Moultrie	90	$100	90	$27	2,430	$56	1,391	8 70	783	578	.....
Ogle	8,825	85	7,501	24	180,024	60	108,014	9 90	74,260	33,754	.....
Peoria	25	$100	25	$27	675	65	439	10 55	264	175	.....
Piatt	29	90	26	14	364	80	291	11 25	292	.....	1
Putnam	16	$100	16	$27	432	35	151	$10 55	169	.....	18
Randolph	17	100	17	$27	459	25	115	10 80	184	.....	69
Richland	20	$100	20	$27	540	$56	302	10 55	211	91	.....
Rock Island	710	87	618	30	18,540	50	9,270	11 85	7,323	1,947	.....
Sangamon	290	$100	290	$27	7,830	$56	4,385	10 55	3,059	1,326	.....
Schuyler	19	$100	19	35	665	$56	372	8 15	155	217	.....
Stark	5	100	5	$27	135	45	61	11 30	56	5	.....
St. Clair	333	$100	333	34	11,322	75	8,491	17 00	5,661	2,830	.....
Stephenson	11,456	92	10,539	27	284,553	53	150,813	10 50	110,659	40,154	.....
Tazewell	164	95	156	$27	4,212	60	2,527	9 95	1,552	975	.....
Union	9	$100	9	$27	243	$56	136	$10 55	95	41	.....

Barley—Continued.

nties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bus.	Value of crop.	Cost of production per acre	Total cost of production	Profit on crop.	Loss on crop.
on	112	$100	112	$27	3,024	$56	$1,693	$10 55	$1,182	$511	.....
.....	8	$100	8	$27	216	$56	121	$10 55	84	37	.....
.....	38	$100	38	$27	1,029	$56	574	10 65	405	169	.....
de	2,505	90	2,254	30	67,620	50	33,810	10 20	22,991	10,819	.....
.....	78	$100	78	$27	2,106	$56	1,179	9 60	749	430	.....
ago	1,155	105	1,213	18	21,834	50	10,917	9 15	11,099	.....	$182
rd	564	95	536	15	7,040	$56	4,502	9 70	5,199	.....	697
.....	43,016	91	39,313	25	998,382	56	$560,703	$10 55	$407,271	$155,656	$2,224

timated.

FLAX.

Counties.	Acreage 1879, returned by assessors	Per ct. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Boone	2,142	85	1,821	7	12,747	$1 00	$12,747	$10 30	$18,856	.....	$6,09
Carroll	64	†100	64	†9	576	†1 00	576	†9 45	605	.....	5
Champaign	10,917	100	10,917	10	109,170	1 00	109,170	10 55	115,174	.....	6,0
Christian	1,337	50	668	8	5,344	1 00	5,344	8 75	5,845	.....	5
Clark	32	110	35	6	210	80	168	†9 45	331	.....	1
Clay	2,126	111	2,360	8	18,880	1 00	18,880	8 25	19,470	.....	5
Cook	11,763	105	12,351	13	160,563	1 15	184,647	9 10	112,394	$72,253	.....
Crawford	8	100	8	16	128	90	115	†9 45	76	39	.....
DeKalb	10,157	105	10,665	9	95,984	1 05	100,785	10 60	113,049	.....	12,3
DuPage	5,884	87	5,119	10	51,190	1 06	54,261	10 75	55,029	.....	5
Edgar	65	†100	65	†9	585	†1 00	585	†9 45	614	.....	3
Effingham	4	†100	4	9	36	1 00	36	10 35	41	.....	4
Fayette	16	†100	16	†9	144	85	122	†9 45	151	.....	9
Ford	28,883	103	29,749	7	208,243	97	201,996	7 85	233,530	.....	31,5
Franklin	28	90	25	9	225	90	202	6 70	167	35	.....
Grundy	1,907	100	1,907	9	17,163	1 05	18,021	10 60	20,214	.....	2,1
Hamilton	30	95	28	†9	252	†1 00	252	5 95	167	85	.....
Iroquois	34,801	85	29,581	8	236,648	95	224,816	7 70	227,774	.....	2,9
Jasper	1,170	147	1,720	7	12,040	1 00	12,040	6 60	11,352	688	.....
Jefferson	433	100	433	†9	3,897	†1 00	3,897	†9 45	4,092	.....	1
JoDaviess	2,176	100	2,176	10	21,760	95	20,672	10 85	23,610	.....	2,9
Kane	623	100	623	11	6,853	1 02	6,990	13 40	8,348	.....	1,3
Kankakee	2,847	100	2,847	7	19,929	95	18,932	8 60	24,484	.....	5,5
Kendall	30	†100	30	10	300	95	285	†9 45	283	2	.....
Lake	6,356	101	6,419	10	64,190	1 07	68,683	†9 45	60,659	8,024	.....
LaSalle	400	90	360	8	2,880	1 20	3,456	9 95	3,582	.....	1
Lawrence	6	25	1	†9	9	†1 00	9	12 30	12	.....	3
Livingston	17,336	100	17,336	9	156,024	1 00	156,024	10 65	184,628	.....	28,6
Macon	1,161	87	1,010	8	8,089	1 07	8,646	9 30	9,393	.....	7
Marion	138	112	154	10	1,540	1 00	1,540	†9 45	1,455	85	.....
Marshall	10	†100	10	9	90	†1 00	90	†9 45	94	.....	4
McHenry	3,508	75	2,631	13	34,203	1 05	35,913	10 05	26,441	9,472	.....
McLean	4,849	†100	4,849	11	53,339	1 06	56,539	†9 45	45,823	10,716	.....
Montgomery	371	†100	371	10	3,710	1 00	3,710	†9 45	3,506	204	.....
Moultrie	674	86	580	9	5,220	1 10	5,742	8 90	5,162	580	.....
Ogle	1,445	100	1,445	11	15,895	1 00	15,895	10 40	15,028	867	.....
Platt	5,427	95	5,156	9	46,404	1 00	46,404	10 00	51,560	.....	5,1
Richland	530	97	514	5	2,570	1 00	2,570	†9 45	4,857	.....	2,2
Shelby	208	†100	208	†9	1,872	†1 00	1,872	†9 45	1,966	.....	9
Stephenson	2,155	92	1,983	10	19,830	80	15,864	9 25	18,343	.....	2,4
Vermilion	9,380	130	12,194	10	121,940	1 00	121,940	8 65	105,478	16,462	.....
Washington	46	†100	46	10	460	1 10	506	7 75	356	150	.....
Wayne	326	107	349	6	2,094	1 10	2,303	8 80	3,071	.....	76
Will	3,110	100	3,110	11	34,210	1 05	35,920	9 10	28,301	7,619	.....
Winnebago	47	†100	47	10	470	1 00	470	†9 45	444	26	.....
Total	174,926	98	171,985	9	1,557,898	$1 00	$1,579,634	$9 45	$1,565,715	$127,307	$113,3

† Estimated.

unties.	PASTURES. Acreage returned by assessors, 1879.	Per ct. increase or decrease.	Acreage 1880.	Value per acre	Total value 1880	*ORCHARDS. Acreage returned by assessors, 1879.	Per ct. increase or decrease.	Acreage, 1880.	Value of product per acre	Total value of product, 1880.
s	44,366	90	39,929	$4 05	$161,712	6,609	112	7,402	$35 00	$259,070
nder	112	100	112	2 75	308	552	86	475	18 45	8,764
	*21,249	97	20,611	2 00	41,222	†2,436	100	2,436	50 00	121,800
	41,423	100	41,428	3 75	155,336	1,338	99	1,325	15 00	19,875
n	24,422	101	24,666	2 85	70,298	1,831	110	2,014	18 35	36,957
u	107,813	103	111,047	4 75	527,473	6,796	125	8,495	23 35	198,358
un	2,909	102	2,967	4 00	11,868	2,493	101	2,518	12 00	30,216
ll	56,305	75	42,229	3 75	158,358	1,477	125	1,846	50 00	92,300
	15,853	98	15,536	3 50	54,376	1,172	100	1,172	40 00	46,880
paign	85,040	100	85,040	3 00	255,120	4,988	101	5,038	25 00	125,950
ian	53,226	98	52,161	3 75	195,604	4,672	105	4,905	19 60	96,138
	22,284	102	22,730	2 80	63,644	2,189	105	2,298	15 00	34,470
	13,587	96	13,043	1 85	24,129	1,593	80	1,274	40 00	50,960
n	26,679	104	27,746	3 50	97,111	2,600	100	2,600	25 00	65,000
	37,827	96	36,314	2 15	78,175	†2,606	118	3,075	9 00	27,675
	85,153	96	81,747	3 15	257,503	4,295	100	4,295	50 00	214,750
ord	26,142	100	26,142	2 10	54,898	1,776	107	1,900	40 00	76,000
erland	22,277	98	21,831	1 65	36,021	1,424	100	1,423	25 00	35,575
lb	111,104	100	111,104	3 75	416,640	4,015	102	4,095	36 65	150,082
tt	33,923	93	31,548	3 00	94,644	2,048	100	2,048	40 00	81,920
as	50,557	100	50,557	4 50	227,506	1,931	97	1,873	50 00	93,650
ge	47,025	96	45,144	3 50	158,004	2,645	127	3,359	17 50	58,782
	106,497	97	103,302	4 85	501,015	3,463	92	3,186	29 00	92,394
rds	6,720	102	6,854	2 00	13,708	1,393	100	1,393	30 00	41,790
ham	19,178	100	19,178	2 00	38,356	1,729	100	1,729	9 00	15,561
te	20,730	103	21,352	2 00	42,704	2,339	105	2,456	14 00	34,384
	28,545	104	29,687	3 00	89,061	2,039	100	2,039	15 00	30,585
lin	2,039	98	1,998	2 50	4,995	1,500	87	1,305	50 00	65,250
n	1,225	96	1,176	3 35	3,940	4,899	†100	4,899	17 50	85,732
in	2,771	96	2,660	2 85	7,581	1,104	100	1,104	8 00	8,832
e	46,572	122	56,818	4 00	227,272	2,145	100	2,145	18 50	39,682
ly	54,143	106	57,391	2 25	129,130	2,188	98	2,144	27 65	59,282
lton	2,960	100	2,960	2 35	6,956	2,170	76	1,649	35 00	57,715
ock	53,296	100	53,296	4 00	213,184	6,848	100	6,848	20 00	136,960
n	2,422	100	2,422	4 00	9,688	868	100	868	22 50	19,530
erson	48,063	95	45,650	4 00	182,600	1,489	103	1,534	12 00	18,408
	97,011	97	94,101	3 70	348,174	4,092	100	4,092	27 50	112,530
ois	93,089	103	95,888	2 00	191,776	5,020	86	4,317	31 00	133,827
on	4,850	100	4,850	6 00	29,100	3,892	103	4,009	19 00	76,170
r	10,054	102	10,255	1 10	11,280	1,303	107	1,394	17 50	24,395
son	17,670	95	16,786	2 50	41,965	3,132	105	3,288	22 50	73,980
y	22,879	120	27,455	3 50	96,092	2,228	98	2,183	35 00	76,405
ziess	58,138	96	55,812	3 15	175,808	1,997	100	1,997	17 50	34,947
on	4,136	100	4,136	3 00	12,408	1,814	105	1,905	27 50	52,387
	79,083	100	79,083	3 50	276,790	2,709	115	3,115	22 50	70,087
akee	58,085	100	58,085	2 25	130,691	1,893	91	1,723	15 50	26,706
all	51,121	100	51,121	3 50	178,923	3,891	112	4,358	15 00	65,370
	139,263	102	142,048	3 25	461,656	5,344	101	5,397	43 00	232,071
	51,862	97	50,306	2 50	125,765	2,909	103	2,996	27 65	82,839
le	104,331	100	104,331	3 50	365,158	6,453	96	6,195	22 00	136,290
ence	12,420	103	12,793	4 25	54,370	2,383	105	2,502	30 00	75,060
	*58,728	97	56,966	3 00	170,898	†3,688	100	3,688	10 65	39,277
gston	74,464	107	79,676	3 75	298,785	4,610	105	4,840	12 00	58,080
n	49,865	91	45,377	3 50	158,819	2,121	101	2,142	50 00	107,100
n	46,835	100	46,835	2 75	128,796	2,995	100	2,995	70 00	209,650
upin	29,126	101	29,417	3 75	110,314	5,474	100	5,474	23 50	128,639
on	29,596	100	29,596	3 75	110,985	6,892	100	6,892	22 50	155,070
n	23,632	100	23,632	2 00	47,264	3,583	90	3,225	†26 25	84,656
nall	33,694	103	34,705	3 85	133,614	2,569	100	2,569	17 50	44,957
n	*7,295	100	7,295	5 00	36,475	†1,699	100	1,699	15 00	25,485
ie	2,404	103	2,476	*3 30	8,171	1,462	105	1,535	17 50	26,862
nough	19,062	91	17,346	4 35	75 455	2,575	100	2,575	28 75	74,031

Pastures—Continued. *Orchards*—Continued.

Counties.	Acreage 1879, returned by assessors	Per ct. increase or decrease	Acreage 1880	Value per acre	Total value 1880	Acreage 1879, returned by assessors	Per ct. increase or decrease	Acreage, 1880	Value of product per acre	Total value of product, 1880
McHenry	118,695	102	121,344	$3 50	$424,704	3,374	92	3,104	$55 00	$170,72[illegible]
McLean	142,033	99	140,613	2 80	393,716	7,416	102	7,564	65 00	491,66[illegible]
Menard	38,009	95	36,108	3 60	129,989	1,691	100	1,691	16 50	27,90[illegible]
Mercer	75,984	97	73,704	4 30	316,927	3,798	102	3,874	18 00	69,73[illegible]
Monroe	5,508	102	5,618	4 50	25,281	1,490	105	1,564	15 00	23,46[illegible]
Montgomery	60,014	96	57,613	2 00	115,226	4,740	75	3,555	12 50	44,43[illegible]
Morgan	89,439	92	82,284	3 65	300,336	3,764	100	3,764	28 35	106,70[illegible]
Moultrie	34,400	97	33,368	3 00	100,104	2,206	82	1,809	60 00	108,54[illegible]
Ogle	70,525	97	68,405	3 00	205,215	2,978	100	2,978	13 35	39,73[illegible]
Peoria	54,916	88	48,326	4 25	205,385	3,228	108	3,486	20 00	69,72[illegible]
Perry	4,868	100	4,868	2 00	9,736	712	100	712	20 00	14,24[illegible]
Piatt	42,121	105	44,277	2 70	119,548	2,205	102	2,249	20 00	44,98[illegible]
Pike	85,800	95	81,510	3 00	244,530	4,469	100	4,469	20 00	89,38[illegible]
Pope	8,873	96	8,518	5 00	42,590	2,317	100	2,317	20 00	46,34[illegible]
Pulaski	700	103	721	4 25	306,425	2,045	102	2,086	20 00	41,72[illegible]
Putnam	16,504	100	16,504	2 50	41,260	1,107	100	1,107	12 00	13,2[illegible]
Randolph	9,177	101	9,269	3 00	27,807	2,876	100	2,876	25 00	71,9[illegible]
Richland	13,253	93	12,325	4 00	49,300	2,493	100	2,493	35 00	49,8[illegible]
Rock Island	47,164	103	48,579	3 25	157,882	3,121	100	3,121	28 35	88,4[illegible]
Saline	1,649	100	1,649	2 00	3,298	1,040	110	1,144	30 00	34,3[illegible]
Sangamon	129,092	94	121,346	3 30	400,442	4,260	101	4,302	27 65	118,9[illegible]
Schuyler	22,467	100	22,467	2 00	44,934	2,507	98	2,457	10 00	24,57[illegible]
Scott	17,388	88	15,297	4 25	65,012	806	88	709	20 00	14,1[illegible]
Shelby	50,197	95	47,687	2 00	95,374	3,573	75	2,680	17 50	46,9[illegible]
Stark	32,644	97	31,665	4 00	126,660	1,413	102	1,441	30 50	43,9[illegible]
St. Clair	13,642	96	13,096	5 50	72,028	5,537	100	5,537	22 50	124,5[illegible]
Stephenson	49,070	85	41,709	3 75	156,409	2,942	98	2,883	21 50	61,9[illegible]
Tazewell	44,424	100	44,424	5 00	222,120	3,532	101	3,567	25 00	89,175
Union	4,796	100	4,796	5 00	23,980	3,843	105	4,035	40 00	161,4[illegible]
Vermilion	107,781	91	98,081	4 00	392,324	3,839	112	4,299	35 00	150,4[illegible]
Wabash	4,733	100	4,733	3 15	14,909	1,590	110	1,749	30 00	52,4[illegible]
Warren	79,680	100	79,680	3 10	247,008	2,740	108	2,959	47 00	139,0[illegible]
Washington	13,578	102	13,849	2 50	34,622	2,273	110	2,500	37 50	93,7[illegible]
Wayne	26,838	100	26,838	2 00	53,676	3,122	100	3,122	24 00	74,9[illegible]
White	8,916	106	9,451	2 75	25,990	2,484	112	2,782	15 00	41,7[illegible]
Whiteside	77,609	100	77,609	2 75	213,425	3,760	125	4,700	26 50	124,5[illegible]
Will	110,577	98	108,365	2 85	308,840	5,385	103	5,546	27 50	152,5[illegible]
Williamson	3,581	100	3,581	5 00	17,905	2,084	100	2,084	20 00	41,6[illegible]
Winnebago	63,941	97	62,023	3 50	217,080	2,668	125	3,335	25 00	83,3[illegible]
Woodford	46,014	100	46,014	3 25	149,545	3,084	103	3,176	9 75	30,9[illegible]
Total	4,329,985	98	4,257,054	$3 40	$14,491,114	300,899	101	306,096	$26 70	$8,176,[illegible]

*Estimated.

*Apple, peach, pear and vineyards.
†Estimated.

IRISH POTATOES.

ities.	Acreage returned by assessors, 1879	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel—cents	Value of crop	Co t of production per acre	Total cost of production	Profit on crop	Loss on crop
.....	1,895	100	1,895	73	138,335	68	$94,068	$15 65	$29,657	$64,411	.....
der	151	93	140	105	14,700	57	8,379	18 35	2,569	5,810	.....
.....	.....	103	.....	60	.....	58	.....	19 65	.....	.....	.....
.....	469	100	469	96	45,024	35	15,758	23 95	11,232	4,526	.....
.....	348	106	369	100	36,900	70	25,830	17 30	6,384	19,446	.....
.....	1,657	101	1,673	62	103,726	52	53,937	19 10	31,954	21,983	.....
n	310	95	294	20	5,880	70	4,116	21 80	6,409	.....	$2,293
.....	837	98	820	50	41,000	67	27,470	31 65	25,953	1,517	.....
.....	219	105	230	75	17,250	77	13,282	22 30	5,129	8,153	.....
aign ...	1,706	106	1,808	44	79,552	50	39,776	20 10	36,341	3,435	.....
an	851	105	893	75	66,975	52	34,827	19 15	17,101	17,726	.....
.....	401	98	393	52	20,436	56	11,444	21 15	8,312	3,132	.....
.....	123	108	133	46	6,118	48	2,937	17 40	2,314	623	.....
.....	682	105	716	43	30,788	65	20,012	22 20	15,895	4,117	.....
.....	661	90	595	75	44,625	53	23,651	17 10	10,174	13,477	.....
.....	9,677	101	9,774	61	596,214	60	357,728	17 15	167,624	190,104	.....
rd	322	107	344	96	33,024	62	21,465	17 80	6,123	15,342	.....
land ..	183	100	183	61	11,163	56	6,251	14 15	2,589	3,662	.....
.....	1,604	96	1,540	47	72,380	52	37,638	23 35	35,959	1,679	.....
.....	328	97	318	50	15,900	67	10,653	15 20	4,833	5,820	.....
s	168	101	170	86	14,620	56	8,187	18 50	3,145	5,042	.....
)	3,349	108	3,617	98	354,446	63	223,301	31 85	115,201	108,100	.....
.....	457	98	448	96	43,008	60	25,805	15 65	7,011	18,794	.....
s	114	100	114	40	4,560	56	2,553	16 50	1,881	672	.....
am	427	100	427	80	34,160	45	15,372	21 90	9,351	6,021	.....
.....	208	100	208	95	19,760	50	9,880	23 05	4,794	5,086	.....
.....	393	89	350	40	14,000	80	11,200	19 10	6,685	4,515	.....
n	36	106	38	30	1,140	55	627	16 15	614	13	.....
.....	770	107	824	*68	56,032	62	34,740	15 70	12,937	21,803	.....
.....	174	100	174	75	13,050	56	7,308	19 80	3,445	3,863	.....
.....	181	111	201	75	15,075	76	11,457	17 25	3,467	7,990	.....
.....	492	101	497	105	52,185	70	36,529	18 75	9,319	27,210	.....
on	114	100	114	83	9,462	65	6,150	22 30	2,542	3,608	.....
k	1,210	105	1,270	58	73,660	42	30,937	23 60	29,972	965	.....
.....	1,301	97	1,262	62	78,244	45	35,210	18 45	23,284	11,926	.....
son ...	124	102	126	36	4,536	67	3,039	18 55	2,337	702	.....
.....	1,126	95	1,070	42	44,940	68	30,559	20 70	22,149	8,410	.....
s	1,460	100	1,460	22	32,120	71	22,805	25 30	36,938	.....	14,133
.....	430	101	434	100	43,400	75	32,550	23 95	10,394	22,156	.....
.....	354	100	354	65	23,010	43	9,894	15 55	5,505	4,389	.....
n	232	90	209	62	12,958	55	7,127	17 25	3,605	3,522	.....
.....	309	110	340	112	38,080	70	26,656	20 95	7,123	19,533	.....
ss	1,650	100	1,650	95	156,750	37	57,997	18 70	30,855	27,142	.....
.....	171	100	171	45	7,695	45	3,463	18 25	3,121	342	.....
.....	1,250	103	1,287	92	118,404	50	59,202	22 55	29,022	30,180	.....
ee	1,081	85	919	46	42,274	63	26,633	26 00	23,894	2,739	.....
.....	692	101	699	99	69,201	56	38,752	21 90	15,308	23,444	.....
.....	1,259	105	1,322	54	71,388	63	44,974	*20 55	27,167	17,807	.....
.....	1,724	98	1,689	100	168,900	56	94,584	19 50	32,935	61,649	.....
.....	2,804	100	2,804	70	196,280	54	105,991	21 40	60,006	45,985	.....
ce	292	96	280	118	33,040	45	14,868	18 45	5,166	9,702	.....
.....	.....	98	.....	66	.....	55	.....	18 35	.....	.....	.....
ton ...	1,621	96	1,556	50	77,800	76	59,128	22 45	34,932	24,196	.....
.....	624	104	649	46	29,854	70	20,898	19 80	12,850	8,048	.....
.....	938	101	947	63	59,661	50	29,830	20 75	19,650	10,180	.....
in, ...	367	112	411	75	30,825	68	20,961	19 95	8,199	12,762	.....
.....	4,719	100	4,719	57	268,983	53	142,561	19 30	91,077	51,484	.....
.....	170	107	182	100	18,200	55	10,010	15 15	2,757	7,253	.....
ll	415	101	419	43	18,017	65	11,711	22 15	9,281	2,430	.....

Irish Potatoes—Continued.

Counties.	Acreage returned by assessors, 1879	Per cent. of increase or decrease	Acreage 1880	Yield per acre in bushels	Total yield in bushels	Price per bushel—cents	Value of crop	Cost of production per acre	Total cost of production	Profit on crop	Loss on crop
Mason		100		30		60		$20 30			
Massac	223	75	167	38	6,346	78	$4,950	13 45	$2,246	$2,704	
McDonough	576	101	582	63	36,666	68	24,933	22 35	13,008	11,925	
McHenry	1,796	93	1,670	141	235,470	42	98,897	19 85	33,149	65,748	
McLean	1,734	104	1,803	60	108,180	82	88,708	23 90	43,092	45,616	
Menard	310	106	328	72	23,616	73	17,240	24 00	7,872	9,368	
Mercer	915	106	970	48	46,560	47	21,883	20 50	19,885	1,998	
Monroe	978	101	988	117	115,596	52	60,110	22 85	22,576	37,534	
Montgomery	457	104	475	76	36,100	57	20,577	19 05	9,049	11,528	
Morgan	2,500	100	2,500	*68	170,000	60	102,000	21 30	53,250	48,750	
Moultrie	225	103	232	110	25,520	45	11,484	22 00	5,104	6,380	
Ogle	1,553	107	1,662	83	137,946	45	62,076	20 75	34,486	27,590	
Peoria	1,581	111	1,755	60	105,300	61	64,233	26 45	46,420	17,813	
Perry	95	100	95	80	7,600	58	4,408	22 80	2,166	2,242	
Piatt	399	108	431	44	18,964	53	10,051	17 25	7,435	2,616	
Pike	671	103	691	*68	46,988	70	32,892	*20 55	14,200	18,692	
Pope	1,636	100	1,636	75	122,700	62	76,074	24 30	39,755	36,319	
Pulaski	75	100	75	43	3,225	72	2,322	19 40	1,455	867	
Putnam	305	95	290	50	14,500	60	8,700	19 75	5,727	2,973	
Randolph	680	100	680	75	51,000	65	33,150	36 65	24,922	8,228	
Richland	231	100	231	60	13,860	50	6,930	18 90	4,366	2,564	
Rock Island	2,106	111	2,338	45	105,210	43	45,240	22 70	53,073		[illegible]
Saline	86	100	86	75	6,450	60	3,870	16 80	1,445	2,425	
Sangamon	1,061	106	1,125	46	51,750	75	38,812	23 80	26,775	12,037	
Schuyler	248	106	263	55	14,465	77	11,138	21 55	5,668	5,470	
Scott	273	102	278	35	9,730	82	7,979	20 55	5,713	2,266	
Shelby	618	98	606	66	39,996	50	19,998	18 35	11,120	8,878	
Stark	317	100	317	78	24,726	57	14,094	20 90	6,625	7,469	
St. Clair	3,022	105	3,173	100	317,300	65	206,245	25 95	82,339	123,906	
Stephenson	1,715	100	1,715	58	99,470	41	40,783	22 30	38,244	2,539	
Tazewell	938	108	1,013	46	46,598	65	30,289	24 00	24,312	5,977	
Union	523	50	261	50	13,050	50	6,525	*20 55	5,363	1,162	
Vermilion	915	108	988	50	49,400	63	31,122	21 35	21,094	10,028	
Wabash	179	93	166	100	16,600	76	12,616	17 25	2,863	9,753	
Warren	526	100	526	44	23,144	58	13,423	23 10	12,151	1,272	
Washington	564	100	564	63	35,532	46	16,345	19 60	11,054	5,291	
Wayne	248	105	260	73	18,980	58	11,008	19 40	5,044	5,964	
White	293	100	293	75	21,975	57	12,526	20 65	6,050	6,476	
Whiteside	1,453	100	1,453	65	94,445	45	42,500	23 00	33,419	9,081	
Will	2,690	97	2,609	115	300,035	56	168,020	20 75	54,137	113,883	
Williamson	138	100	148	165	22,770	50	11,385	19 50	2,691	8,694	
Winnebago	1,235	100	1,235	72	88,920	46	40,903	19 90	24,576	16,327	
Woodford	721	100	731	20	14,420	71	10,238	19 85	14,312		[illegible]
Total	92,439	101	93,387	69	6,470,811	56	$3,689,848	$20 55	$1,992,702	$1,724,979	[illegible]

*Estimated.

SORGHUM.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	No. of gallons of syrup per acre	Total No. of gallons produced	Price per gallon	Value of product
s	525	100	525	100	52,500	$0 45	$23,625
nder	122	100	122	130	15,860	35	5,551
e	4	110	4	150	600	50	300
n	354	95	336	75	25,200	40	10,080
au	75	100	75	60	4,500	45	2,025
un	43	100	43	25	1,075	50	537
ll	36	25	9	98	882	50	441
	16	125	20	60	1,200	50	600
paign	244	100	244	80	19,520	47	9,174
tian	136	75	102	100	10,200	46	4,692
	418	98	410	85	34,850	37	12,894
	495	103	510	30	15,300	42	6,426
on	102	93	95	117	11,115	50	5,557
	180	86	155	67	10,385	38	3,946
	10						
ford	368	105	386	103	39,758	45	17,891
berland	342	85	291	80	23,280	41	9,545
lb	3	100	3	108	324	65	211
itt	48	82	39	120	4,680	50	2,340
las	72	100	72	106	7,632	46	3,511
ge	1	185	2	175	350	40	140
r	1,085	88	955	122	116,510	46	53,595
rds	120	100	120	100	12,000	43	5,160
gham	425	102	433	40	17,320	32	5,542
tte	364	100	364	73	26,572	46	12,223
	76	100	76	80	6,080	45	2,736
klin	160	100	160	75	12,000	45	5,400
on	283	105	297	72	21,384	40	8,554
tin	213	90	192	40	7,680	45	3,456
ne	92	100	92	67	6,164	56	3,452
dy	15	105	16	120	1,920	42	806
ilton	296	95	281	93	26,133	45	11,760
ock	310	97	301	100	30,100	36	10,836
lin	174	100	174	100	17,400	30	5,220
lerson	33	100	33	100	3,300	45	1,485
y	65	100	65	225	14,625	52	7,605
nois	288	100	288	80	23,040	53	12,211
son	238	83	239	100	23,900	46	10,994
er	528	102	538	80	43,040	36	15,494
rson	344	100	344	175	60,200	43	25,886
ey	30	100	30	46	1,380	40	552
aviess	36	100	36	98	3,528	50	1,764
ison	238	87	207	57	11,799	40	4,720
	2	100	2	300	600	50	300
kakee	91	110	100	40	4,000	51	2,040
dall	2	105	2	90	180	60	108
x	206	111	228	125	28,500	51	14,535
	1	100	1	200	200	45	90
alle	167	112	187	86	16,082	46	7,398
rence	295	100	295	85	25,075	38	9,528
ngston	152	100	152	110	16,720	38	6,354
an	36	110	40	100	4,000	45	1,800
on	82	100	82	110	9,020	46	4,149
oupin	158	100	158	50	7,900	46	3,634
ison	173	98	169	102	17,238	44	7,585
ion	307	110	338	75	25,350	42	10,647
shall	47	125	59	125	7,375	45	3,319

Sorghum—Continued.

Counties.	Acreage 1879, returned by assessors	Per cent. of increase or decrease	Acreage 1880	No. of gallons of syrup per acre	Total No. of gallons produced	Price per gallon	Value of product
Mason							
Massac	182	87	158	90	14,220	$0 31	$4,4[illegible]
McDonough	162	100	162	125	20,250	41	8,3[illegible]
McHenry	161	145	233	125	29,125	43	12,5[illegible]
McLean	157	100	157	50	7,850	47	3,6[illegible]
Menard	55	‡100	55	175	9,625	55	5,2[illegible]
Mercer	193	105	203	100	20,300	50	10,1[illegible]
Monroe	79	103	81	75	6,075	53	3,2[illegible]
Montgomery	226	100	226	100	22,600	41	9,3[illegible]
Morgan	75	150	112	80	8,960	50	4,4[illegible]
Moultrie	151	100	151	70	10,570	46	4,8[illegible]
Ogle	20	100	20	135	3,700	50	1,3[illegible]
Peoria	84	200	168	85	14,280	46	6,5[illegible]
Perry	68	100	68	58	3,944	40	1,5[illegible]
Piatt	82	100	82	83	6,806	40	2,7[illegible]
Pike	225	100	225	‡98	22,050	50	11,0[illegible]
Pope	674	100	674	70	47,180	30	14,1[illegible]
Pulaski	150	90	135	72	9,720	38	3,6[illegible]
Putnam	48	120	58	60	3,480	50	1,7[illegible]
Randolph	293	102	299	80	23,920	52	12,4[illegible]
Richland	294	100	294	50	14,700	45	6,6[illegible]
Rock Island	72	100	72	125	9,000	65	5,8[illegible]
Saline	357	100	357	175	62,475	35	21,8[illegible]
Sangamon	60	100	60	100	6,000	75	4,5[illegible]
Schuyler	258	98	253	100	25,300	40	10,1[illegible]
Scott	2	100	2	90	180	50	[illegible]
Shelby	256	88	225	200	45,000	35	15,7[illegible]
Stark	29	98	28	125	3,500	50	1,7[illegible]
St. Clair	98	105	103	‡98	10,094	50	5,0[illegible]
Stephenson	21	92	19	100	1,900	45	8[illegible]
Tazewell	75	100	75	100	8,250	50	4,1[illegible]
Union	150	‡100	150	198	14,700	‡45	6,6[illegible]
Vermilion	191	100	191	125	23,875	40	9,5[illegible]
Wabash	102	95	97	95	9,215	40	3,6[illegible]
Warren	133	100	133	70	9,310	46	4,2[illegible]
Washington	252	100	252	35	8,820	51	4,4[illegible]
Wayne	619	96	594	110	65,340	40	26,1[illegible]
White	420	100	420	70	29,400	42	12,3[illegible]
Whiteside	26	‡100	26	100	2,600	50	1,3[illegible]
Will	18	‡100	18	150	2,700	‡45	1,2[illegible]
Williamson	507	100	507	38	19,266	30	5,7[illegible]
Winnebago	20	‡100	20	125	2,500	50	1,2[illegible]
Woodford	62	90	56	60	3,360	45	1,512
Total	17,883	99	17,716	90	1,588,666	$0 42	$6[illegible]

‡Estimated.

ɜLE, *showing Acreage of Farm Crops in 1880, compared with 1879, and Yield compared with an Average.*

Counties.	Broom Corn.		Cotton		Tobacco.		Castor Beans.		Sweet Potatoes.		Buckwheat.		Turnip & Other Root Crops.		Beans.		Peas.	
	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...
ns	100	90	....	....	....	....	....	....	101	96	100	95	80	90	90	50	....	....
ander	....	100	100	90	....	100	....	....	105	100	100	100	75	100	93	100	90	100
l	....	100	....	....	....	75	....	....	102	100	....	....	100	100	100	....	....	....
ie	95	101	....	....	....	....	....	....	....	90	96	100	100	100	....	....	95	100
vn	....	....	....	....	....	....	....	....	95	77	100	90	83	87	100	85	....	....
sau	....	....	....	....	....	....	....	....	....	100	92	100	100	100	....	....	....	....
oun	....	....	....	....	....	....	....	....	100	100	....	....	....	....	....	....	....	....
oll	....	....	....	....	....	....	....	....	110	100	110	100	....	....	100	....	100	....
	....	....	....	....	....	....	....	....	103	90	....	....	100	80	....	....	....	....
npaign	100	100	....	....	....	....	....	....	....	80	100	100	100	100	100	....	100	....
stian	75	100	....	....	50	....	....	....	103	98	37	75	95	96	100	100	100	....
k	....	100	....	....	105	102	....	....	100	92	75	100	75	100	97	62	....	....
	100	80	....	....	100	....	....	....	100	88	100	75	75	....	87	93	50	100
on	....	....	....	....	100	100	100	100	101	98	75	90	96	94	100	100	....	....
s	100	103	....	....	70	....	....	....	93	100	90	100	....	....	92	95	100	95
	....	....	....	....	....	....	....	....	....	....	90	100	....	....	100	105	....	....
ford	97	93	....	....	....	96	....	....	101	100	85	87	97	95	98	96	100	....
berland	....	75	....	....	100	75	....	....	92	95	50	50	80	85	81	90	100	....
alb	....	....	....	....	....	....	....	....	....	100	100	103	102	107	100	100	....	100
itt	100	....	....	....	....	....	....	....	98	91	....	....	100	100	100	100	100	100
gias	96	100	....	....	95	100	100	....	100	100	100	100	100	100	100	100	100	100
age	100	100	....	....	....	....	....	....	....	....	....	....	100	102	100	115	....	....
ar	....	100	....	....	....	100	....	....	101	98	88	96	100	98	100	95	....	....
ards	....	100	....	....	100	95	....	100	110	100	100	100	100	100	....	95	....	95
gham	100	92	....	....	....	100	....	....	105	70	....	50	100	75	100	87	....	....
tte	100	87	....	....	98	65	....	100	100	82	86	86	100	88	100	92	....	75
	....	....	....	....	....	....	....	....	90	100	....	....	....	....	....	....	....	....
klin	....	90	....	90	100	80	50	82	98	105	87	85	91	90	....	100	....	100
on	....	....	....	....	....	....	....	....	100	100	100	75	100	75	....	....	....	....
atin	....	....	....	....	90	....	90	....	100	77	....	....	....	80	....	....	....	....
ne	....	....	....	....	....	....	....	....	100	100	100	100	....	....	....	100	....	....
ady	....	100	....	....	....	....	....	....	100	110	100	95	100	100	80	....	100	....
ilton	90	80	95	....	87	86	95	....	92	95	....	....	90	....	....	75	....	....
ock	....	100	....	....	....	105	....	110	103	95	90	90	95	95	100	93	100	....
lin	....	....	....	....	....	....	....	....	100	100	....	....	90	95	....	100	....	100
lerson	....	....	....	....	....	....	....	95	100	100	100	100	100	100	....	100	....	....
y	105	90	....	....	....	90	100	90	100	100	95	82	90	90	100	90	100	90
ois	....	....	....	....	100	....	125	....	100	100	100	100	100	100	110	....	....	....
son	....	80	....	....	....	....	....	....	100	92	100	90	87	75	100	95	100	95
er	100	100	....	....	100	92	....	....	100	98	77	87	87	87	100	87	....	....
rson	....	90	....	....	....	90	....	95	100	100	87	87	95	85	100	95	....	....
ey	....	100	....	....	....	108	....	....	100	108	....	....	100	100	105	100	....	....
wiess	....	....	....	....	....	100	....	....	....	100	75	100	100	100	100	100	100	100
son	100	....	100	90	75	100	....	100	75	90	....	....	100	100	100	100	110	....
	100	100	....	....	....	....	....	....	....	100	101	100	102	102	100	100	100	100
akee	100	85	....	....	....	....	....	....	....	75	96	95	100	100	75	85	90	....
lall	....	....	....	....	....	....	....	....	102	93	87	97	100	100	93	100	100	....
	90	103	....	....	....	....	....	....	106	93	80	95	....	....	100	75	....	....
	....	100	....	....	....	....	....	....	....	....	98	98	100	102	100	100	....	....
lle	....	100	....	....	....	....	....	....	100	97	75	92	100	100	100	100	....	....
rence	....	95	....	....	....	100	....	....	100	100	100	90	100	100	....	100	....	....
	....	....	....	....	....	100	....	....	100	97	100	100	97	100	100	100	100	100
igston	....	75	....	....	....	....	....	....	111	75	....	....	....	....	105	....	....	....
n	....	....	....	....	....	....	....	....	103	101	....	....	75	....	90	40	....	....

Acreage of Farm Products—Continued.

Counties.	Broom Corn.		Cotton		Tobacco.		Castor Beans.		Sweet Potatoes.		Buckwheat.		Turnip & Other Root Crops.		Beans.		Peas.	
	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...	Acreage compared with 1879.	Average yield...
Macon	100	105							98	98			100	100	75			
Macoupin									103	109	125	150	120	100	100	112	100	
Madison		100							100	98			100	97		100		
Marion	80	110			110	100	90	100	92	120	112	87	100	90	75	105	100	100
Marshall									100	90			80	80		100		
Mason									100	80			100	50	90			
Massac					25	57			105	87			100	100	100	80	100	9
McDonough	100	90							100	85	50	62	62	62	100	87	100	
McHenry							100		100	100	130	102	100	100	100	100	100	100
McLean		75							100	87	100	75	100					
Menard	100	100							103	100			80	80	100	100	100	
Mercer	100	95							100	100	80	80	100	100	100	100		
Monroe	100	100			100				100	90		100	97	92	100	100	100	
Montgomery		100							100	103	100	100			100	100	105	100
Morgan		110							105	100					100		100	
Moultrie	100	96							100	98	70	90	80	90		100		
Ogle		100							100	96	98	100	100	101	100	100	100	100
Peoria									105	100	110	100			100	100		
Perry									100	88	100	100	100	90	100	100	100	
Piatt	95	100							100	95	95	93	100	100		90		
Pike						100			103	100	100	75	91	78	100	100		
Pope	100	60		80	78	75			100	80			100	80	90	90	90	100
Pulaski	100				100	85			106	111			98	100	83	100	91	100
Putnam									100	97	103	100	100	100		97		
Randolph	100	75			100	100			102	92	100	87	100					
Richland	90	90							96	100	95	100	90	90	95	95		
Rock Island	100	100							100	95	106	100	105	100	85	100		
Saline	100		100	100	80	80			100	100					100	75	100	75
Sangamon	100	105			100	95			100	100	75	105	100	100	125	100	100	
Schuyler	80	95							96	92					100	90	100	
Scott									100	72					100	85		
Shelby	102	100			102	95			103	98	87	92	56	70	100	89	99	100
Stark	97	100							97	100	96	100	97	105	97	100	95	95
St. Clair	100	100					100	90	112	93	90	75	75	62				
Stephenson	100	100			100	98			100	96	100	96	100	98	100	100	100	100
Tazewell		100							108	96	93	90	87	87	100	70	100	
Union									100	100	100	90	100	80				
Vermilion	100	110			90		100		108	106	100	100	100	100	95	100	105	
Wabash	95					90			100	97			100	80	100			
Warren		102							100	100	105	100	100	80	100	100	100	
Washington	100	50			100	75			100	90			100	50	100	50	100	
Wayne	100	100			100	91	90	100	103	95	75	90	75	75	100	82		
White	100					75			100	70	100	100						
Whiteside									105	100	125	125	100	100	100	100		
Will									100	100	100	100	100	100				
Williamson		55		75	87	85	50	75	100	76					93	87	80	100
Winnebago		115									95	100	94	96	100			
Woodford	100	80						95	100	100	100	95	100	95	90	100	95	100

Counties.	Corn.	Meadow	Winter wheat.	Spring wheat.	Oats.	Pasture.	Orch'rds	Rye.	Barley.	Irish potatoes	Sorgh'm	Flax.
Adams	91,075	25,554	63,611	336	21,873	39,929	7,402	715	86	1,895	525	.....
Alexander	10,239	544	7,948	43	543	112	475	4	.....	140	122	.....
Bond	32,589	13,577	32,327	.....	7,900	20,611	2,436	.....	.....	.....	.....	.....
Boone	30,019	23,906	1,159	3,489	22,968	41,423	1,325	1,765	438	469	4	1,821
Brown	30,645	9,419	24,202	87	4,135	24,666	2,014	306	.....	369	336	.....
Bureau	194,141	44,122	660	18,122	31,240	111,047	8,495	1,802	1,560	1,673	75	.....
Calhoun	14,715	2,077	18,897	.....	1,216	2,967	2,518	6	.....	294	43	.....
Carroll	65,645	20,219	7,805	5,397	26,201	42,229	1,846	4,828	5,172	820	9	64
Cass	49,548	4,255	20,831	763	8,244	15,536	1,172	508	20	230	20	.....
Champaign	211,137	34,658	19,712	852	35,468	85,040	5,038	2,871	.....	1,808	244	10,917
Christian	93,743	33,030	82,321	1,222	15,075	52,161	4,905	494	293	893	102	668
Clark	39,895	15,255	51,197	14	8,300	22,730	2,298	191	.....	393	410	35
Clay	30,614	24,621	32,413	.....	6,983	13,043	1,274	225	.....	133	510	2,360
Clinton	45,959	9,360	85,228	1,039	16,494	27,746	2,600	74	10	716	95	.....
Coles	64,793	17,224	33,272	233	8,490	36,314	3,075	253	80	595	155	.....
Cook	54,414	101,023	232	3,865	54,845	81,747	4,295	1,098	193	9,774	10	12,351
Crawford	32,123	11,604	47,636	.....	9,816	26,142	1,900	99	10	344	386	8
Cumberland	24,441	13,793	28,400	24	8,533	21,831	1,423	265	17	183	291	.....
DeKalb	119,892	68,841	108	6,918	47,009	111,104	4,095	806	1,751	1,540	3	10,665
DeWitt	71,553	13,426	8,713	2,972	14,219	31,548	2,048	2,601	19	318	39	.....
Douglas	74,290	17,014	33,477	324	10,117	50,557	1,873	871	21	170	72	.....
DuPage	33,362	32,140	316	3,389	31,048	45,144	3,359	1,539	135	3,617	2	5,119
Edgar	102,275	27,058	47,339	119	12,375	103,302	3,186	449	19	448	955	65
Edwards	15,618	7,520	26,164	.....	2,463	6,854	1,393	.....	7	114	120	.....
Effingham	39,424	17,513	46,863	2	15,253	19,178	1,729	407	7	427	433	4
Fayette	50,129	15,942	56,980	17	11,644	21,352	2,456	301	.....	208	364	16
Ford	123,049	21,319	295	348	14,322	29,687	2,039	928	41	350	76	29,749
Franklin	19,053	3,669	28,303	25	4,080	1,998	1,305	8	10	38	160	25
Fulton	113,317	29,153	36,807	9,816	22,452	1,176	4,899	6,829	93	824	297	.....
Gallatin	24,405	2,820	21,139	33	1,049	2,660	1,104	41	.....	174	192	.....
Greene	51,908	15,194	58,018	110	3,547	56,818	2,145	47	.....	201	92	.....
Grundy	105,209	30,892	80	404	11,121	57,391	2,144	1,678	77	497	16	1,907
Hamilton	23,758	5,410	36,800	.....	2,789	2,960	1,649	21	.....	114	281	28
Hancock	125,192	33,890	27,953	4,317	36,364	53,296	6,848	2,694	10	1,270	301	.....
Hardin	9,739	2,165	4,815	43	1,536	2,422	868	35	.....	1,269	174	.....
Henderson	70,901	9,351	4,119	6,011	10,600	45,650	1,534	2,869	53	126	33	.....
Henry	203,319	42,657	484	6,618	29,764	94,101	4,092	4,559	669	1,070	65	.....
Iroquois	239,226	51,289	4,510	864	37,191	95,888	4,317	3,628	129	1,460	288	29,581
Jackson	23,175	5,765	51,403	119	4,068	4,850	4,009	80	79	434	239	.....
Jasper	28,496	13,083	25,428	.....	6,488	10,255	1,394	212	.....	354	538	1,720
Jefferson	34,207	8,540	54,996	20	8,586	16,786	3,288	99	28	209	344	433
Jersey	35,137	9,563	51,747	27	3,778	27,455	2,183	10	.....	340	30	.....
Jo Daviess	55,027	31,906	8,689	3,638	30,347	55,812	1,997	2,146	881	1,650	36	2,176
Johnson	20,186	4,027	20,374	1	1,373	4,136	1,905	9	.....	171	207	.....

Acres in Cultivation in 1880—Continued.

Counties.	Corn.	Meadow	Winter wheat.	Spring wheat.	Oats.	Pasture.	Orch'rds	Rye.	Barley.	Irish potatoes	Sorgh'm	Flax.
Kane	51,372	52,027	205	3,173	30,007	79,083	3,115	1,495	504	1,287	2	623
Kankakee	114,975	43,301	2,309	1,557	29,429	58,085	1,723	2,347	227	919	100	2,847
Kendall	76,111	31,088	142	1,878	19,823	51,121	4,358	318	33	699	2	30
Knox	160,129	40,736	5,182	6,890	36,446	142,048	5,397	4,724	178	1,322	228	.....
Lake	21,401	41,176	22	2,363	22,225	50,306	2,996	451	113	1,689	1	6,419
LaSalle	250,043	79,299	529	13,630	47,534	104,331	6,195	3,252	726	2,804	187	360
Lawrence	27,774	7,586	43,921	500	3,145	12,793	2,502	128	182	280	295	1
Lee	115,228	30,654	.....	34,818	19,182	56,966	3,688	.....	.....	.....	.....	.....
Livingston	250,935	65,817	643	3,517	51,942	79,676	4,840	6,405	61	1,556	152	17,336
Logan	151,435	13,651	23,701	2,246	17,313	45,377	2,142	1,577	193	649	40	.....
Macon	111,063	16,071	22,802	2,110	17,655	46,835	2,995	1,199	86	947	82	1,010
Macoupin	87,403	30,681	114,424	81	19,879	29,417	5,474	200	20	411	158	.....
Madison	83,306	14,140	141,576	.....	11,480	29,596	6,892	56	.....	4,719	169	.....
Marion	38,143	16,450	38,524	.....	10,049	23,632	3,225	443	.....	182	338	154
Marshall	85,184	16,412	621	2,955	19,382	34,705	2,569	2,239	.....	419	59	10
Mason	61,515	2,905	9,456	852	6,711	7,295	1,699	.....	.....	.....	.....	.....
Massac	15,348	3,040	20,838	6	1,163	2,476	1,535	3	.....	167	158	.....
McDonough	101,429	20,774	10,073	12,976	25,310	17,346	2,575	4,320	.....	582	162	.....
McHenry	59,260	59,779	597	7,847	37,519	121,344	3,104	1,080	574	1,670	233	2,631
McLean	263,973	51,353	11,635	6,705	53,321	140,613	7,564	8,205	349	1,803	157	4,819
Menard	57,049	8,274	18,947	577	8,397	36,108	1,691	325	80	328	55	.....
Mercer	112,301	22,838	392	12,200	18,371	73,704	3,874	3,131	55	970	203	.....
Monroe	17,703	6,656	62,468	.....	5,747	5,618	1,564	24	87	988	81	.....
Montgomery	76,684	25,455	138,611	.....	13,371	57,613	3,555	1,171	34	475	226	371
Morgan	99,271	33,707	61,603	1,000	10,160	82,284	3,764	5,023	.....	2,500	112	.....
Moultrie	50,327	9,195	19,452	116	9,406	33,368	1,809	493	90	232	151	580
Ogle	114,314	42,772	5,807	8,633	54,205	68,405	2,978	4,052	7,501	1,662	20	1,445
Peoria	132,465	35,721	5,838	5,568	30,962	48,326	3,486	5,821	25	1,755	168	.....
Perry	11,633	2,609	37,279	10	5,022	4,868	712	23	.....	95	68	.....
Piatt	90,352	13,342	7,999	721	19,165	44,277	2,249	1,690	26	431	82	5,156
Pike	63,614	14,516	105,048	273	5,898	81,510	4,469	144	.....	691	22	.....
Pope	23,241	2,681	18,870	.....	3,887	8,518	2,317	20	.....	1,636	674	.....
Pulaski	11,880	3,090	12,354	.....	620	721	2,086	.....	.....	75	135	.....
Putnam	31,167	6,592	354	3,245	4,754	16,504	1,107	891	16	290	58	.....
Randolph	29,302	8,590	88,662	.....	10,417	9,269	2,876	16	17	680	390	.....
Richland	25,281	12,765	41,561	5	5,449	12,325	2,493	11	20	231	204	514
Rock Island	67,004	22,272	255	7,047	12,862	48,579	3,121	3,110	618	2,338	72	.....
Saline	17,558	2,910	21,235	44	2,172	1,649	1,144	4	.....	86	357	.....
Sangamon	136,704	22,842	56,859	1,594	12,746	121,846	4,502	1,468	290	1,125	60	.....
Schuyler	44,438	12,407	34,575	910	6,369	22,467	2,457	643	19	203	263	.....
Scott	27,387	4,460	23,402	.....	543	15,207	709	54	.....	178	2	.....
Shelby	77,066	34,142	62,112	242	16,248	47,697	[illegible]	1,102	.....	[illegible]	[illegible]	[illegible]
Stark	69,302	12,544	103	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]
St. Clair	43,060	11,735	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Wabash	15,363	5,323	27,085	.....	1,481	4,733	1,749	42	8	166	97	[illegible]
Warren	127,893	21,401	1,326	10,669	29,235	79,680	2,959	1,681	38	526	133	.....
Washington	31,240	4,818	82,813	13	17,207	13,849	2,500	82	.....	564	252	46
Wayne	35,282	19,026	44,400	4	8,181	26,838	3,122	103	.....	260	594	349
White	49,070	8,617	60,453	.....	3,467	9,451	2,782	19	.....	293	420	.....
Whiteside	126,871	38,687	640	12,996	30,330	77,609	4,700	2,880	2,254	1,453	26	.....
Will	133,852	81,402	732	3,144	70,835	108,365	5,546	1,527	78	2,609	18	3,110
Williamson	20,851	3,846	26,531	.....	3,201	3,581	2,084	10	.....	138	507	.....
Winnebago	75,170	31,304	2,541	5,500	42,090	62,023	3,335	7,572	1,213	1,235	20	47
Woodford	114,742	24,770	3,631	8,483	34,837	46,014	3,176	4,584	536	721	56	.....
Total	7,574,545	2,259,857	2,970,086	286,264	1,749,391	4,257,054	306,096	149,742	39,313	93,387	17,726	171,985

Value of Principal Crops in 1880.

Counties.	Corn.	Meadows.	Winter wheat.	Spring wheat.	Oats.	Pastures.	Orchards.	Rye.	Barley.	Irish potatoes.	Sorghum.	Flax seed.
Adams	$1,300,551	$358,395	$719,440	$2,426	$166,235	$161,712	$259,070	$5,298	$1,625	$94,068	$23,625	.....
Alexander	180,206	10,608	89,892	310	3,041	308	8,764	38	.....	8,379	5,551	.....
Bond	195,534	131,525	517,232	.....	45,030	41,222	121,800	.....	.....	.....	.....	.....
Boone	396,251	174,810	22,183	24,179	197,754	155,336	19,875	22,610	3,679	15,758	300	$12,747
Brown	291,127	86,655	387,232	529	25,306	70,298	36,957	2,570	.....	25,830	10,080	.....
Bureau	2,178,262	344,152	4,389	104,020	230,551	527,473	198,358	15,858	19,219	53,937	2,025	.....
Calhoun	188,352	31,150	428,584	.....	8,938	11,868	30,216	57	.....	4,116	537	.....
Carroll	856,667	247,681	195,125	38,858	235,809	158,358	92,300	48,280	69,510	27,470	441	576
Cass	507,371	44,674	286,843	5,508	49,464	54,376	46,880	4,836	302	13,282	600	.....
Champaign	2,432,298	216,610	327,219	6,151	134,069	255,120	125,950	25,092	.....	39,776	9,174	109,170
Christian	1,096,763	332,361	1,667,000	8,823	79,596	195,604	96,138	4,051	4,430	34,827	4,692	5,344
Clark	377,008	114,410	637,403	101	39,840	63,644	34,470	1,681	.....	11,444	12,894	168
Clay	220,421	114,488	414,886	.....	42,736	24,129	50,960	900	.....	2,937	6,426	18,880
Clinton	375,025	133,380	1,273,306	7,501	77,192	97,111	65,000	497	153	20,012	5,557	.....
Coles	719,202	107,650	539,006	1,948	53,487	78,075	27,675	1,531	1,389	23,651	3,946	.....
Cook	806,415	1,180,709	3,835	34,012	386,109	257,503	214,750	13,176	3,960	357,728	.....	184,647
Crawford	382,264	87,030	533,523	.....	51,534	54,898	76,000	998	151	21,465	17,891	115
Cumberland	265,185	136,380	302,744	173	47,785	36,021	35,575	1,325	257	6,251	9,545	.....
DeKalb	1,640,122	645,381	1,771	31,479	330,473	416,640	150,082	9,285	29,767	37,638	211	100,785
DeWitt	643,977	151,042	121,459	13,552	71,095	94,644	81,920	22,889	287	10,653	2,340	.....
Douglas	869,193	102,084	356,850	972	45,526	227,506	93,650	6,968	317	8,187	3,511	.....
DuPage	490,421	433,890	2,654	24,468	204,917	158,004	58,782	15,698	2,041	223,301	140	54,261
Edgar	1,286,619	233,375	667,953	859	62,370	501,015	92,394	4,041	287	25,805	53,595	585
Edwar !s	147,278	59,220	272,106	.....	10,862	13,708	41,790	.....	106	2,553	5,160	.....
Effingham	294,891	194,615	531,426	14	96,094	38,356	15,561	3,875	106	15,372	5,542	36
Fayette	369,952	161,413	765,811	122	78,248	42,704	34,384	1,854	.....	9,880	12,223	122
Ford	1,181,270	131,110	2,478	2,512	105,267	89,061	30,585	8,854	620	11,200	2,736	201,996
Franklin	205,772	51,178	215,103	190	31,416	4,995	65,250	76	70	627	5,400	202
Fulton	1,229,489	262,374	588,912	41,227	165,022	3,940	85,732	81,128	1,406	34,740	8,554	.....
Gallatin	214,764	42,300	245,635	238	5,245	7,581	8,832	390	.....	7,308	3,456	.....
Greene	817,551	126,297	1,225,340	794	35,470	227,272	39,682	447	.....	11,457	3,452	.....
Grundy	1,031,048	224,739	672	3,684	86,632	129,130	59,282	14,347	862	36,529	806	18,021
Hamilton	190,064	101,636	311,696	.....	12,327	6,966	57,715	141	.....	6,150	11,760	252
Hancock	1,611,221	258,408	398,051	45,328	274,912	213,184	136,960	26,671	135	30,937	10,836	.....
Hardin	74,990	71,445	35,535	310	6,300	9,688	19,530	210	.....	35,210	5,220	.....
Henderson	853,648	112,212	33,364	43,279	75,684	182,600	18,408	31,559	1,187	8,039	1,485	.....
Henry	2,073,854	541,212	4,840	60,356	244,095	348,174	112,590	50,149	9,906	30,550	7,605	.....
Iroquois	1,789,410	384,665	57,502	6,238	218,683	191,776	133,827	30,476	1,950	22,805	12,211	224,816
Jackson	200,927	100,890	370,102	859	23,432	29,100	76,170	762	1,194	32,550	10,904	.....
Jasper	359,075	89,047	325,479	.....	30,780	11,280	24,395	1,686	.....	9,504	15,494	13,640
Jefferson	305,488	54,802	585,157	144	47,328	61,965	75,980	1,247	470	7,127	35,881	8,957

Kane	684,275	468,240	2,952	39,980	316,874	270,750	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kankakee	977,287	511,495	29,440	7,474	176,574	130,691	26,706	12,674	3,064	26,633	2,040	18,932
Kendall	979,548	373,056	2,023	12,019	131,823	178,923	65,370	2,290	579	38,752	108	285
Knox	1,825,471	427,728	68,817	42,442	325,463	461,656	232,071	44,406	2,691	44,974	14,535	.....
Lake	333,427	345,878	439	29,774	248,919	125,765	82,839	4,600	1,695	94,584	90	68,683
LaSalle	3,150,542	915,902	5,290	46,342	399,286	365,158	36,290	23,414	10,977	105,991	7,398	3,456
Lawrence	412,444	56,895	498,064	3,610	16,354	54,370	75,060	1,664	2,752	14,868	9,528	9
Lee	1,292,858	383,175	.....	313,362	138,494	170,898	39,277	.....	.....	.....	.....	.....
Livingston	1,525,685	575,900	5,401	25,392	233,739	298,785	58,080	50,215	922	59,128	6,354	156,024
Logan	1,590,067	118,761	398,177	14,150	93,490	158,819	107,100	16,558	2,918	20,898	4,149	.....
Macon	1,575,984	156,689	416,364	16,036	114,051	128,796	209,650	13,669	1,300	29,830	1,800	8,646
Macoupin	1,048,836	276,126	2,469,270	584	193,820	110,314	128,639	3,360	302	20,961	3,634	.....
Madison	877,212	228,007	3,043,884	.....	92,529	110,985	155,070	742	.....	142,561	7,585	.....
Marion	198,344	197,400	624,089	.....	36,476	47,264	84,656	5,648	.....	10,010	10,647	1,540
Marshall	1,222,390	157,965	9,725	29,579	175,919	133,614	44,957	16,927	.....	11,711	3,319	90
Mason	430,605	42,451	147,324	6,151	33,555	36,475	25,485	.....	.....	.....	.....	.....
Massac	184,790	53,200	146,699	43	6,106	8,171	26,862	28	.....	4,950	4,408	.....
McDonough	1,038,633	169,046	136,993	104,197	202,480	75,455	74,031	49,421	.....	24,933	8,302	.....
McHenry	938,678	506,624	12,346	109,230	354,930	424,704	170,720	11,578	9,478	98,897	12,524	35,913
McLean	2,618,612	426,873	204,776	35,671	314,061	393,716	491,660	81,229	5,277	88,708	3,689	56,530
Menard	530,556	94,113	280,794	3,563	57,435	129,989	27,901	3,315	2,560	17,240	5,294	.....
Mercer	1,820,660	225,808	1,470	63,440	139,630	316,927	69,732	36,006	832	21,883	10,150	.....
Monroe	227,837	89,856	1,299,334	.....	60,343	25,281	23,460	228	1,705	90,110	3,220	.....
Montgomery	809,783	213,819	2,661,331	.....	89,051	115,226	44,437	11,007	514	60,577	9,266	3,710
Morgan	1,250,815	412,916	936,366	7,600	89,611	300,336	106,709	47,819	.....	102,000	4,480	.....
Moultrie	513,335	73,098	299,366	970	50,040	100,104	108,540	4,338	1,361	11,484	4,862	5,742
Ogle	1,554,670	374,255	112,191	66,474	520,368	205,215	39,756	49,434	108,014	62,076	1,350	15,895
Peoria	1,748,538	393,820	80,331	31,181	291,872	205,385	69,720	71,016	439	64,233	6,569	.....
Perry	69,798	27,229	340,357	72	22,599	9,736	14,240	219	.....	4,408	1,578	.....
Piatt	924,301	87,554	127,664	3,461	107,516	119,548	44,980	18,810	291	10,051	2,722	46,404
Pike	587,793	218,466	2,079,950	1,671	63,698	244,530	89,380	1,778	.....	32,892	11,025	.....
Pope	251,003	40,215	169,830	.....	26,121	42,590	46,340	190	.....	76,074	14,154	.....
Pulaski	148,500	61,800	85,984	.....	4,687	306,425	41,720	.....	.....	2,322	3,694	.....
Putnam	411,404	63,514	3,115	15,900	38,032	41,260	13,284	7,841	151	8,700	1,740	.....
Randolph	435,135	103,008	1,017,840	.....	78,127	27,807	71,900	192	115	33,150	12,438	.....
Richland	151,686	63,825	302,980	36	16,347	49,300	49,860	62	302	6,930	6,615	2,570
Rock Island	643,238	347,443	3,029	72,725	99,552	157,882	88,480	28,954	9,270	45,240	5,850	.....
Saline	122,906	69,84	147,158	318	8,688	3,298	34,320	26	.....	3,870	21,866	.....
Sangamon	1,476,403	259,824	1,046,206	16,737	84,124	400,442	118,950	15,341	4,385	38,812	4,500	.....
Schuyler	511,926	108,560	453,624	7,207	41,144	44,934	24,570	7,202	372	11,138	10,120	.....
Scott	363,152	80,837	439,209	.....	5,701	65,012	14,180	514	.....	7,979	90	.....
Shelby	859,353	228,139	1,093,171	1,747	91,123	95,374	46,900	12,034	.....	19,998	15,750	1,872
Stark	847,276	116,845	1,545	29,473	136,840	126,660	43,950	14,637	61	14,094	1,750	.....
St. Clair	813,260	258,012	2,143,873	945	101,227	72,028	124,582	162	8,491	206,245	5,047	.....
Stephenson	1,056,119	400,983	136,718	85,857	286,756	156,409	61,984	110,966	150,813	40,783	855	15,864
Tazewell	1,327,427	282,724	326,128	29,421	169,760	222,120	89,175	48,070	2,527	30,289	4,125	.....
Union	249,165	85,296	251,460	382	10,917	23,980	161,400	38	136	6,525	6,615	.....
Vermilion	1,936,624	282,014	1,035,422	4,621	38,086	392,324	150,465	8,292	1,693	31,122	9,550	121,940
Wabash	125,055	49,900	222,097	.....	7,405	14,909	52,470	400	121	12,616	3,686	.....

Value of Principal Crops in 1880—Continued.

Counties.	Corn.	Meadows.	Winter wheat.	Spring wheat.	Oats.	Pastures.	Orchards.	Rye.	Barley.	Irish potatoes.	Sorghum.	Flax seed.
Warren	$1,446,470	$160,506	$14,825	$53,772	$223,648	$247,008	$139,073	$13,919	$574	$13,423	$4,283	.....
Washington	203,060	50,589	1,117,975	93	206,484	34,622	93,750	1,025	.....	16,345	4,498	$506
Wayne	324,594	101,789	444,444	29	41,668	53,676	74,928	960	.....	11,008	26,136	2,302
White	362,137	103,400	477,579	.....	13,001	25,990	41,730	181	.....	12,526	12,348	.....
Whiteside	1,332,145	290,150	3,040	53,284	303,300	213,425	124,550	37,440	33,810	42,500	1,300	.....
Will	1,782,908	946,298	8,052	30,780	684,266	308,840	152,515	16,033	1,179	168,020	1,215	35,920
Williamson	158,467	61,536	179,084	.....	12,100	17,905	41,680	95	.....	11,385	5,780	.....
Winnebago	996,754	225,389	36,590	58,630	351,872	217,080	83,375	63,605	10,917	40,903	1,250	470
Woodford	1,022,351	238,408	46,477	19,227	278,666	149,545	30,966	40,339	4,502	10,238	1,512	.....
Total	$83,757,039	$22,589,691	$44,457,428	$2,039,732	$12,858,247	$14,491,114	$8,176,480	$1,513,587	$560,703	$3,689,348	$676,630	$1,579,634

HOG PRODUCT, 1880.

Counties.*	Number of hogs assessed May, 1880	*Number of hogs marketed, 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value of hog product	Supply hogs on hand Dec. 20, 1880, compared with same date, 1879	Price per cwt. Dec. 20, 1880—live weight
.....	58,054	40,638	271	11,012,898	$4 05	$446,022	71	$4 50
er	5,697	3,988	152	606,176	3 25	19,701	87	3 60
.....	14,888	10,422	233	2,428,326	3 95	95,918	72	3 95
.....	15,341	10,739	258	2,770,662	4 05	112,213	69	4 30
.....	21,352	14,946	220	3,288,120	3 65	120,016	70	4 25
.....	73,176	51,223	240	12,293,520	4 00	491,740	75	4 35
.....	9,394	6,576	250	1,644,000	4 00	65,760	68	4 00
.....	35,082	24,557	300	7,367,100	4 25	313,102	90	4 50
.....	12,688	8,882	237	2,105,034	3 85	81,042	77	4 00
ign	56,367	39,457	236	9,311,852	4 00	372,472	93	4 15
n	47,002	32,901	242	7,962,042	4 05	322,461	80	4 25
.....	21,358	14,951	226	3,378,926	3 95	133,466	52	4 10
.....	16,742	11,719	222	2,601,618	3 60	93,658	66	3 90
.....	13,520	9,464	193	1,826,552	3 20	58,448	48	4 00
.....	35,052	24,536	238	5,839,568	3 55	207,306	80	3 40
.....	15,645	10,951	280	3,066,280	4 60	141,050	91	4 70
i	20,267	14,187	205	2,908,335	3 95	114,878	85	4 05
and	15,974	11,182	222	2,482,404	3 80	94,331	81	4 00
.....	42,279	29,595	323	9,559,185	4 20	401,486	93	4 60
.....	28,468	19,928	225	4,483,800	3 90	174,868	101	3 90
.....	25,992	18,194	249	4,530,306	3 95	178,946	88	4 20
.....	14,905	10,433	258	2,691,714	4 25	114,397	82	4 20
.....	32,687	22,881	200	4,576,200	4 00	183,048	94	4 10
.....	13,214	9,250	260	2,405,000	3 85	92,592	75	4 00
m	16,232	11,362	235	2,670,070	3 60	96,124	90	4 00
.....	33,933	23,753	230	5,463,190	3 65	199,407	83	4 00
.....	22,978	16,085	250	4,021,250	4 20	168,890	81	4 05
.....	14,822	10,375	200	2,075,000	3 75	77,812	62	3 85
.....	71,057	49,740	265	13,181,100	3 85	507,472	83	4 15
.....	15,104	10,573	220	2,326,060	3 40	79,087	58	4 00
.....	27,048	18,934	335	6,342,890	4 00	253,716	81	4 15
.....	16,940	11,858	285	3,379,530	3 90	131,800	90	4 40
n	15,894	11,126	243	2,703,618	3 90	105,440	67	3 90
.....	58,714	41,100	276	11,343,600	4 25	482,10[illegible]	88	4 50
.....	9,176	6,423	225	1,445,175	3 50	50,582	70	3 60
on	27,288	19,102	260	4,966,520	4 05	201,143	70	4 25
.....	86,198	60,339	233	14,058,987	4 15	583,448	75	4 25
.....	55,712	38,998	216	8,423,568	3 85	324,309	88	4 25
.....	19,298	13,509	291	3,931,119	3 45	135,623	65	3 85
.....	17,803	12,462	235	2,928,570	3 85	112,751	92	4 05
n	21,165	14,815	225	3,333,375	3 35	111,669	66	4 05
.....	19,961	13,973	266	3,716,818	4 15	154,247	70	4 25
s	40,119	28,083	263	7,385,829	4 20	310,204	67	4 20
.....	13,740	9,618	225	2,164,050	3 90	84,396	100	3 85
.....	27,287	19,101	266	5,080,866	4 15	210,857	91	4 50
e	13,308	9,316	246	2,291,736	3 60	82,501	72	4 20
.....	24,379	17,065	275	4,692,875	4 00	187,716	69	4 20
.....	56,205	39,343	278	10,937,354	4 15	453,898	63	4 30
.....	12,769	8,938	235	2,100,430	4 20	88,217	62	4 45
.....	66,234	46,364	286	13,260,104	4 25	563,554	70	4 30
e	17,269	12,088	220	2,659,360	3 60	95,738	80	4 05
.....	31,858	22,301	238	5,307,638	3 90	206,996	80	4 10
on	74,662	52,263	268	14,006,484	4 15	581,270	58	4 25
.....	43,386	30,370	280	8,503,600	4 10	348,648	83	4 15
.....	46,585	32,609	245	7,989,205	4 15	331,552	72	4 10
n	49,768	34,838	250	8,709,500	3 95	344,025	90	4 15

Hog Product—Continued.

Counties.	Number of hogs assessed May, 1880	*Number of hogs marketed, 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value of hog product	Supply hogs on hand Dec. 30, 1880, compared with same date, 1879	Price per cwt. live weight, Dec. 30, 1880
Madison	41,568	29,098	251	7,303,598	4 00	292,144	90	[illegible]
Marion	21,642	15,149	200	3,029,800	4 00	121,192	100	[illegible]
Marshall	29,038	20,327	262	5,325,674	4 50	239,656	72	[illegible]
Mason	14,781	10,346	250	2,586,500	4 00	103,460	65	[illegible]
Massac	10,908	7,636	250	1,909,000	3 50	66,815	62	[illegible]
McDonough	56,877	39,814	250	9,953,500	4 05	403,117	61	[illegible]
McHenry	27,449	19,214	266	5,110,924	3 90	199,325	85	[illegible]
McLean	95,113	66,579	254	16,911,066	4 15	701,811	75	[illegible]
Menard	17,287	12,101	238	2,880,038	3 90	112,320	85	[illegible]
Mercer	53,989	37,792	269	10,166,048	4 00	406,640	62	[illegible]
Monroe	12,254	8,578	175	1,501,150	4 35	65,298	83	[illegible]
Montgomery	41,567	29,097	255	7,419,735	4 00	296,788	97	[illegible]
Morgan	13,325	9,327	240	2,238,480	4 00	89,540	82	[illegible]
Moultrie	22,342	15,639	220	3,440,580	3 75	129,022	65	[illegible]
Ogle	51,342	35,939	276	9,919,164	4 25	421,566	90	[illegible]
Peoria	43,349	30,344	300	9,103,200	4 50	409,644	70	[illegible]
Perry	8,953	6,267	200	1,253,400	3 50	43,869	85	[illegible]
Platt	27,323	19,126	221	4,226,846	3 80	160,618	90	[illegible]
Pike	54,577	38,204	225	8,595,900	4 00	343,836	17	[illegible]
Pope	15,667	10,967	202	2,215,334	3 75	83,074	90	[illegible]
Pulaski	4,471	3,130	215	672,950	4 40	29,608	91	[illegible]
Putnam	11,264	7,885	275	2,168,375	4 25	92,157	60	[illegible]
Randolph	21,704	15,193	212	3,220,916	3 75	120,784	87	[illegible]
Richland	13,134	9,194	180	1,654,920	3 50	57,921	13	[illegible]
Rock Island	31,671	22,170	271	6,008,070	4 25	255,344	72	[illegible]
Saline	17,511	12,258	200	2,451,600	3 50	85,806	75	[illegible]
Sangamon	68,628	48,040	232	11,145,280	3 80	423,531	82	[illegible]
Schuyler	31,564	22,095	270	5,965,650	4 10	244,590	53	[illegible]
Scott	17,852	12,496	270	3,373,920	4 20	141,704	77	[illegible]
Shelby	49,579	34,705	225	7,808,625	4 10	320,153	87	[illegible]
Stark	32,011	22,408	326	7,305,008	3 90	284,896	77	[illegible]
St. Clair	22,805	15,963	273	4,357,899	3 85	167,779	102	[illegible]
Stephenson	44,585	31,209	266	8,301,594	4 10	340,366	85	[illegible]
Tazewell	37,351	26,146	276	7,216,296	4 10	295,868	93	[illegible]
Union	18,366	12,856	200	2,571,200	3 75	96,420	50	[illegible]
Vermilion	58,550	40,985	218	8,934,730	3 95	352,921	73	[illegible]
Wabash	6,948	4,864	230	1,118,720	3 85	43,070	79	[illegible]
Warren	53,451	37,416	278	10,401,648	4 00	416,064	88	[illegible]
Washington	15,609	10,926	225	2,458,350	3 50	86,040	91	[illegible]
Wayne	22,929	16,050	225	3,611,250	3 50	126,392	66	[illegible]
White	26,360	18,452	225	4,151,700	3 50	145,309	72	[illegible]
Whiteside	41,019	28,734	250	7,183,500	4 25	305,299	75	[illegible]
Will	28,428	19,899	366	7,283,034	4 25	309,527	76	[illegible]
Williamson	19,304	13,513	200	2,702,600	3 15	85,132	60	[illegible]
Winnebago	25,347	17,743	281	4,985,783	4 10	204,418	77	[illegible]
Woodford	41,699	29,189	287	8,377,243	3 85	322,522	76	[illegible]
Total	3,133,557	2,189,487	252	553,059,887	$4 00	$22,137,461	76	[illegible]

* 70 per cent. of number assessed.

BEEF CATTLE.

Counties.	Number of cattle assessed May, 1880	Number marketed 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value	Supply on hand Dec. 20, 1880, compared with same date 1879	Price per cwt. Dec. 20, 1880—live weight
	25,190	5,038	1,195	6,020,410	$3 60	$216,734	86	$3 85
ier	2,956	591	687	406,017	2 75	11,165	88	2 85
	10,314	2,063	1,050	2,166,150	3 40	73,647	65	4 10
	19,367	3,873	1,150	4,453,950	3 30	146,979	84	3 85
	9,345	1,869	1,150	2,149,350	3 75	80,599	85	3 75
	39,580	7,916	1,100	8,707,600	3 75	326,535	82	4 30
n	4,195	839	1,000	839,000	3 25	27,267	80	3 75
	29,058	5,812	1,400	8,136,800	4 75	386,498	110	4 25
	10,171	2,034	1,300	2,644,200	4 00	105,768	97	4 15
aign	27,230	5,446	1,225	6,671,350	3 75	250,174	83	4 00
an	24,299	4,860	1,350	6,561,000	4 10	269,001	87	4 05
	11,213	2,243	1,036	2,323,748	3 30	76,682	90	3 55
	10,465	2,093	1,000	2,093,000	2 50	52,325	65	2 50
	8,827	1,765	1,050	1,853,250	3 00	55,596	62	3 25
	21,745	4,349	1,243	5,405,807	3 60	194,609	76	4 00
	40,479	8,096	1,000	8,096,000	2 50	202,400	98	4 55
rd	7,963	1,593	1,012	1,612,116	3 05	49,169	95	3 50
rland	8,319	1,664	800	1,331,200	3 15	41,933	83	3 60
	45,208	9,042	1,133	10,244,586	3 65	373,928	101	4 25
	14,147	2,829	1,283	3,629,607	3 50	127,036	96	3 85
s	18,201	3,640	1,347	4,903,080	3 70	181,415	87	3 80
	21,866	4,373	1,200	5,247,600	4 00	209,904	88	4 35
	30,407	6,081	1,200	7,297,200	3 25	237,159	93	3 65
s	8,448	1,690	1,200	2,028,000	2 65	53,742	88	2 75
am	10,434	2,087	900	1,878,300	2 10	39,444	105	2 75
	17,442	3,488	1,000	3,488,000	3 15	109,872	83	3 65
	9,760	1,952	1,100	2,147,200	3 75	80,520	92	4 15
n	5,068	1,014	1,050	1,064,700	2 35	25,020	75	2 75
	35,820	7,164	1,300	9,313,200	3 80	353,902	80	3 85
	6,340	1,268	850	1,077,800	2 50	26,945	75	3 00
	17,786	3,557	1,266	4,503,162	4 00	180,128	85	3 30
	17,681	3,536	1,275	4,508,400	4 00	180,336	95	4 35
m	10,636	2,127	850	1,807,950	2 75	49,717	70	2 75
k	32,282	6,456	1,150	7,424,400	3 75	278,415	99	3 60
	2,798	560	800	448,000	2 50	11,200	95	2 75
son	13,521	2,704	1,362	3,682,848	4 25	156,519	81	4 25
	43,869	8,774	1,260	11,055,240	4 05	447,736	97	4 10
s	33,254	6,651	1,183	7,868,133	3 25	255,713	90	3 65
	7,851	1,570	850	1,334,500	2 55	34,030	75	3 10
	10,165	2,033	850	1,728,050	2 85	49,248	92	3 25
n	10,955	2,191	975	2,136,225	2 45	52,337	100	2 95
	7,962	1,592	1,190	1,894,480	3 75	71,044	70	3 90
ss	38,645	7,729	1,225	9,468,025	3 55	336,114	75	3 65
	4,221	844	800	675,200	2 00	13,504	100	2 00
	46,311	9,262	1,100	10,188,200	3 40	346,399	100	4 00
ee	16,771	3,354	1,175	3,940,950	3 55	139,902	91	3 05
	19,505	3,901	1,083	4,224,783	4 00	168,992	92	4 35
	36,516	7,303	1,375	10,041,625	3 85	386,602	65	4 30
	20,205	4,041	1,062	4,201,542	3 35	143,765	93	4 65
	52,873	10,575	1,180	12,478,500	3 80	474,185	72	4 25
ce	8,422	1,684	1,100	1,852,400	3 00	55,572	95	3 50
	34,783	6,957	1,175	8,174,475	3 85	314,7[illegible]	85	3 75
ton	30,242	6,048	1,300	7,862,400	4 00	314,496	75	5 00
	21,009	4,202	1,500	6,303,000	4 70	258,423	76	4 85
	17,704	3,541	1,200	4,249,200	3 75	159,345	96	4 00
in	31,265	6,253	1,200	7,503,600	3 35	251,371	80	4 10
	14,136	2,827	1,066	3,013,582	3 90	117,530	96	3 70
	14,462	2,892	1,300	3,759,600	4 50	169,182	100	4 55
ll	14,451	2,890	1,162	3,358,180	3 75	125,932	103	4 00

Beef Cattle—Continued.

Counties.	Number of cattle assessed May, 1880	§Number marketed 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value	Supply on hand Dec. 20, 1880, compared with same date 1879	Price per cwt. Dec. 20, 1880—live weight
Mason	6,611	1,322	1,000	1,322,000	$3 50	$46,270	33	$4 00
Massac	4,119	824	‖1,000	824,000	3 00	24,720	.....	4 00
McDonough	25,100	5,020	1,250	6,275,000	3 85	241,587	78	4 00
McHenry	42,936	8,587	1,100	9,445,700	3 60	340,045	75	4 10
McLean	48,622	9,724	1,095	10,647,780	4 05	431,236	88	4 75
Menard	11,166	2,233	1,287	2,873,871	4 15	119,267	86	4 30
Mercer	31,373	6,275	1,390	8,722,250	4 05	353,249	81	4 40
Monroe	3,889	778	825	641,850	3 25	20,858	75	3 35
Montgomery	20,218	4,044	‖1,000	4,044,000	3 10	125,364	97	3 50
Morgan	15,275	3,055	1,216	3,714,880	3 85	143,024	80	4 35
Moultrie	12,035	2,407	1,266	3,047,262	3 85	117,321	100	4 10
Ogle	50,810	10,162	1,083	11,005,446	3 35	368,681	100	3 50
Peoria	29,834	5,967	1,500	8,950,000	3 85	344,575	95	4 00
Perry	5,664	1,133	850	963,050	2 55	24,556	96	2 75
Piatt	13,462	2,692	1,275	3,432,300	3 65	125,279	95	4 05
Pike	21,552	4,310	1,300	5,603,000	3 95	221,318	97	4 00
Pope	5,672	1,134	1,000	1,134,000	2 75	31,185	100	2 50
Pulaski	2,756	551	850	468,350	2 65	12,410	87	2 25
Putnam	6,710	1,342	1,200	1,610,400	3 85	62,000	91	3 75
Randolph	10,852	2,170	800	1,736,000	2 60	45,136	83	2 60
Richland	10,338	2,068	700	1,447,600	2 35	34,019	73	2 65
Rock Island	22,831	4,566	1,175	5,365,050	3 80	203,870	90	4 00
Saline	5,211	1,042	800	833,600	2 50	20,840	80	3 00
Sangamon	44,028	8,806	1,175	10,347,050	3 75	388,012	80	4 00
Schuyler	17,101	3,420	1,287	4,401,540	4 00	176,060	72	4 00
Scott	6,925	1,385	1,287	1,782,495	3 70	65,962	76	3 95
Shelby	24,103	4,821	1,258	6,064,818	4 00	242,592	86	4 35
Stark	13,888	2,778	1,350	3,750,300	3 65	136,886	86	4 00
St. Clair	9,559	1,912	975	1,864,200	3 35	62,451	96	4 05
Stephenson	34,805	6,961	1,033	7,190,713	3 40	244,484	90	3 65
Tazewell	22,243	4,449	1,133	5,040,717	3 20	161,302	100	3 55
Union	6,119	1,224	750	918,000	3 75	34,425	82	4 00
Vermilion	38,305	7,661	1,316	10,081,876	3 95	398,235	95	3 50
Wabash	5,493	1,099	883	970,417	2 65	25,716	68	3 00
Warren	25,377	5,075	1,287	6,531,525	4 00	621,260	92	4 10
Washington	12,604	2,521	1,000	2,521,000	2 35	59,243	100	2 50
Wayne	19,377	3,875	850	3,293,750	2 50	82,342	100	3 35
White	10,956	2,191	937	2,052,967	2 50	51,325	83	2 70
Whiteside	39,586	7,917	1,100	8,708,700	4 00	348,348	75	4 00
Will	44,326	8,865	1,350	11,967,750	4 00	478,708	105	4 30
Williamson	5,222	1,044	800	835,200	2 10	17,539	62	2 50
Winnebago	30,207	6,041	1,033	6,240,353	3 25	202,810	94	3 85
Woodford	18,390	3,678	1,300	4,781,400	4 25	203,209	100	4 25
Total	1,999,788	399,955	1,167	467,019,031	$3 65	$17,026,130	86	$3 75

§ 20 per cent of number assessed.

‖ Estimated.

FAT SHEEP.

Counties.	Number of sheep assessed in May, 1880	Number marketed in 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value	Supply on hand Dec. 20, 1880, as compared with same date in 1879	Price per cwt. December 20, 1880—live weight
ıs	13,382	2,676	118	315,768	$3 10	$9,790	90	$3 65
ınder	1,125	225	56	2,600	3 65	460	88	3 85
	9,509	1,902	97	184,494	3 25	5,996	60	3 35
e	17,493	3,499	105	367,395	3 30	12,124	89	3 75
n	7,335	1,467	110	161,370	2 85	4,600	90	3 85
au	8,719	1,744	§100	174,400	$3 35	5,842	100	4 00
›un	845	169	95	16,055	4 00	640	90	4 00
›ll	3,996	799	§100	79,900	3 00	2,397	100	3 50
	2,026	405	120	48,600	4 00	1,944	100	4 00
ınpaign	10,271	2,054	90	184,860	3 35	6,194	102	3 75
ıtian	10,556	2,111	85	179,435	3 25	5,830	103	3 00
:	9,660	1,932	83	160,356	3 10	4,969	80	3 45
	10,734	2,147	93	199,671	2 60	5,192	93	2 85
on	7,504	1,501	97	145,597	3 00	4,368	82	3 25
;	9,200	1,840	98	180,320	3 05	5,499	90	3 25
	5,475	1,095	§100	109,500	$3 35	3,668	100	3 80
ford	9,951	1,990	115	228,850	3 20	7,322	95	3 20
berland	5,080	1,016	80	81,280	2 95	2,398	100	3 00
alb	12,466	2,493	98	244,314	3 50	8,550	90	3 60
itt	12,972	2,594	102	264,588	3 25	8,599	100	3 50
glas	6,604	1,321	96	126,816	3 75	4,755	100	3 85
age	12,164	2,433	103	250,599	3 65	9,147	76	4 25
.r	14,890	2,978	100	297,800	3 00	8,934	103	3 65
ards	11,226	2,245	100	224,500	2 65	5,949	93	3 15
gham	5,384	1,077	90	96,930	3 50	3,391	100	3 50
tte	14,496	2,899	90	260,910	3 00	7,827	83	3 00
	1,768	354	§100	35,400	$3 35	1,186	.....	.....
klin	4,519	904	97	87,688	2 75	2,412	62	3 00
›n	20,299	4,060	90	365,400	3 00	10,962	100	3 35
ıtin	3,310	662	§100	66,200	$3 35	2,218	.....	.....
ne	10,548	2,110	101	213,110	3 50	7,458	60	3 50
ıdy	2,232	446	100	44,600	4 00	1,784	100	4 50
ilton	13,084	2,617	83	217,211	2 80	6,082	92	2 70
›ock	5,008	1,002	§100	100,200	$3 35	3,357	100	.....
lin	2,295	459	85	39,015	3 50	1,365	100	3 50
lerson	2,521	504	93	46,872	3 60	1,688	96	3 60
ry	5,949	1,190	120	142,800	4 00	5,712	100	4 35
uois	5,562	1,112	97	107,864	5 00	5,395	105	5 00
son	3,344	669	100	66,900	3 60	2,408	93	3 50
er	6,834	1,367	85	116,195	2 60	3,021	80	2 85
›rson	9,348	1,870	93	173,910	2 55	4,434	90	3 00
ey	5,470	1,094	106	115,964	3 45	4,002	90	3 75
ıviess	10,987	2,197	92	202,124	3 40	6,871	92	3 65
ıison	4,210	842	§100	84,200	2 50	2,105	100	3 60
e	12,737	2,547	90	229,230	3 50	8,022	99	3 85
kakee	3,226	645	82	52,890	3 00	1,587	100	3 40
dall	8,970	1,794	110	197,340	4 15	8,188	95	4 05
x	16,172	3,234	100	323,400	3 25	10,510	102	3 50
e	69,857	13,971	90	1,257,390	3 50	44,009	86	4 35
alle	14,891	2,978	103	306,734	3 80	11,655	103	4 20
rence	5,822	1,164	§100	116,400	3 10	3,608	95	3 75
	9,352	1,870	92	172,040	3 60	6,192	100	3 75
ngston	5,136	1,027	§100	102,790	3 35	3,440	125	3 75
an	8,712	1,742	§100	174,200	4 00	6,968	103	4 20
on	9,284	1,857	110	204,270	3 50	7,150	100	3 75
oupin	20,979	4,196	§100	419,600	3 35	14,057	105	3 50
ison	9,341	1,868	100	186,800	3 75	7,005	100	3 55
ion	11,111	2,222	§100	222,200	$3 35	7,444	100	.....
shall	6,270	1,254	112	140,448	3 25	4,563	103	3 25
on	518	104	100	10,400	3 50	364	50	4 00

Fat Sheep—Continued.

Counties.	Number of sheep assessed in May, 1880	‡Number marketed in 1880	Average live weight—pounds	Total live weight—pounds	Average value per cwt.—live weight	Total value	Supply on hand Dec. 20, 1880, as compared with same date in 1879	Price per cwt. Dec. 20, 1880, live weight
Massac	1,874	375	§100	37,500	§$3 35	$1,256	.....	.....
McDonough	9,616	1,923	§100	192,300	3 00	5,769	75	$3 00
McHenry	52,408	10,482	103	1,079,646	4 00	43,184	109	4 10
McLean	27,389	5,478	105	575,190	3 55	20,420	103	4 00
Menard	5,865	1,173	105	123,165	3 25	4,004	98	3 75
Mercer	5,548	1,110	106	117,660	3 45	4,061	125	3 75
Monroe	1,480	296	90	26,640	3 00	798	99	3 00
Montgomery	14,420	2,884	96	276,864	3 10	8,584	100	3 00
Morgan	12,646	2,529	117	295,893	3 25	9,616	107	4 00
Moultrie	5,140	1,028	95	97,660	3 75	3,664	86	2 75
Ogle	10,169	2,034	95	193,230	3 75	7,245	109	4 15
Peoria	6,886	1,377	125	172,125	3 75	6,454	92	3 75
Perry	3,104	620	80	49,600	2 75	1,364	100	2 10
Piatt	5,070	1,014	103	104,442	3 50	3,654	102	3 65
Pike	12,159	2,432	115	279,680	3 60	10,069	73	3 75
Pope	7,514	1,503	§100	150,300	5 00	7,515	73	5 00
Pulaski	698	140	85	11,900	3 25	387	98	3 00
Putnam	2,231	446	100	44,600	3 50	1,561	100	3 35
Randolph	9,094	1,819	125	227,375	3 25	7,390	92	3 35
Richland	6,943	1,389	105	145,845	2 00	2,916	90	2 50
Rock Island	3,083	617	110	67,870	3 85	2,614	93	3 85
Saline	6,860	1,372	80	109,760	1 75	1,921	75	2 50
Sangamon	19,739	3,947	102	402,594	3 70	14,896	96	3 75
Schuyler	5,831	1,166	102	118,932	3 50	4,161	73	3 85
Scott	6,149	1,230	122	150,060	3 50	5,253	93	3 60
Shelby	16,976	3,395	95	322,525	3 75	12,094	95	4 00
Stark	7,119	1,424	125	178,000	3 75	6,675	106	3 90
St. Clair	5,605	1,121	§100	112,100	4 00	4,484	92	4 50
Stephenson	11,254	2,251	90	202,590	3 50	7,091	90	3 75
Tazewell	10,090	2,018	100	201,800	3 50	7,063	107	3 90
Union	3,747	749	§100	74,900	§3 35	2,509	95	.....
Vermilion	26,873	5,375	105	564,375	3 40	19,190	100	3 65
Wabash	4,067	813	106	86,178	2 90	2,500	72	2 85
Warren	7,150	1,430	107	153,010	3 85	5,890	97	3 85
Washington	5,778	1,156	100	115,600	2 00	2,312	87	3 50
Wayne	12,263	2,453	97	237,941	3 00	7,137	100	3 10
White	6,721	1,344	82	110,208	3 05	3,361	75	3 10
Whiteside	7,557	1,511	90	135,990	4 00	5,440	100	4 00
Will	7,288	1,458	120	174,960	4 50	7,875	100	4 50
Williamson	7,768	1,554	88	136,752	2 35	3,212	78	2 25
Winnebago	15,828	3,16[illegible]	102	322,932	3 25	10,494	96	3 85
Woodford	3,967	793	100	79,300	3 50	2,775	100	3 50
Total	964,696	192,939	99	19,198,595	$3 40	$652,465	98	$3 56

‡ 20 per cent. of number assessed.
§ Estimated.

VALUE LIVE STOCK MARKETED.

Counties.	Hogs Marketed.		Cattle Marketed.		Sheep Marketed.	
	Value 1880.	Value 1879.	Value 1880.	Value 1879.	Value 1880.	Value 1879.
ns	$446,022	$309,395	$216,734	$83,742	$9,790	$7,421
ander	19,701	20,347	11,105	5,859	460	276
l	95,918	50,860	73,647	47,082	5,996	4,090
ne	112,213	102,529	146,979	94,761	12,124	7,083
vn	120,016	142,415	80,599	86,227	4,600	4,624
au	491,740	447,100	326,535	284,776	5,842	5,031
oun	65,760	43,431	27,267	13,685	640	616
oll	313,102	199,904	386,498	128,880	2,397	1,500
	81,042	66,560	105,768	263,577	1,944	544
npaign	372,472	226,889	250,174	122,188	6,194	4,550
stian	322,461	193,165	269,001	249,134	5,830	5,646
k	133,466	108,851	76,682	40,704	4,969	4,345
	93,658	72,645	52,325	37,989	5,192	8,640
ton	58,448	60,542	55,596	68,978	4,368	3,477
s	207,306	199,115	194,609	167,270	5,499	5,990
	141,050	138,434	202,400	229,128	3,668	1,960
vford	114,878	78,523	49,169	62,568	7,322	5,881
berland	94,331	28,896	41,933	75,671	2,398	1,817
alb	401,486	339,478	373,928	314,402	8,550	4,303
fitt	174,868	129,579	127,036	40,365	8,599	1,824
glas	178,946	142,999	181,415	167,832	4,755	3,386
age	114,397	63,582	209,904	145,617	9,147	8,183
ar	183,048	187,495	237,159	417,396	8,934	9,273
ards	92,592	82,875	53,743	37,896	5,949	4,867
gham	96,124	43,419	39,444	47,303	3,391	2,470
tte	199,407	116,877	109,872	109,192	7,827	6,185
l	168,890	113,624	80,520	47,008	1,186	678
klin	77,812	67,510	25,020	20,092	2,412	1,852
on	507,472	417,689	353,902	441,966	10,962	11,127
atin	79,067	38,985	26,945	10,325	2,218	602
ne	253,716	97,707	100,128	165,311	7,458	3,940
ndy	131,800	132,762	180,336	101,993	1,784	1,470
ilton	105,440	37,134	49,717	25,267	6,082	1,983
cock	482,103	225,652	278,415	237,538	3,357	6,039
lin	50,582	17,676	11,200	3,834	1,365	290
derson	201,143	136,897	156,519	139,319	1,688	1,050
ry	583,448	387,629	447,736	316,839	5,712	1,555
uois	324,309	272,553	255,713	260,312	5,395	3,044
son	135,623	73,775	34,030	14,375	2,408	1,725
er	112,751	82,084	49,248	29,520	3,021	2,107
rson	111,669	77,512	52,337	33,396	4,434	1,595
ey	154,247	109,998	71,044	49,926	4,002	5,024
aviess	310,204	277,430	336,114	294,823	6,871	4,177
nson	84,396	66,393	14,504	4,512	2,105	1,144
e	210,857	160,463	346,399	327,229	8,022	8,207
kakee	82,501	74,460	139,902	164,700	1,587	321
dall	187,716	116,593	168,992	136,388	8,188	12,833
x	453,898	482,658	386,602	271,550	10,510	8,775
e	88,217	88,698	143,765	99,597	44,009	53,727
alle	563,554	459,768	474,183	497,511	11,655	7,756
rence	95,738	67,122	55,572	158,137	3,608	4,779
	206,996	151,142	314,718	200,179	6,192	2,968
ngston	581,270	506,835	314,496	241,593	3,440	1,380
an	348,648	268,302	258,423	228,951	6,968	3,108
on	331,552	225,896	159,345	72,659	7,150	4,469
oupin	344,025	277,945	251,371	1,033,281	14,027	8,301
ison	292,144	148,376	117,530	51,234	7,005	8,079
ion	121,192	76,962	169,182	152,880	7,444	15,996
shall	239,656	193,170	125,932	122,346	4,563	2,589
on	103,460	68,849	46,270	20,962	364	279
sac	66,815	67,640	24,720	13,365	1,256	413
onough	403,117	228,499	241,587	278,096	5,769	4,965
lenry	199,325	150,385	340,045	175,156	43,184	33,994
ean	701,811	544,651	431,236	720,262	20,420	8,898

Value Live Stock Marketed—Continued.

Counties.	Hogs Marketed.		Cattle Marketed.		Sheep Marketed.	
	Value 1880.	Value 1879.	Value 1880.	Value 1879.	Value 1880.	Value 1879.
Menard	$112,320	$87,592	$119,267	$268,425	$4,004	[illegible]
Mercer	406,640	295,600	353,249	410,015	4,061	[illegible]
Monroe	65,298	39,048	20,858	11,723	798	[illegible]
Montgomery	296,788	136,875	125,364	302,770	8,584	[illegible]
Morgan	89,540	62,038	143,024	438,880	9,616	[illegible]
Moultrie	129,022	91,524	137,321	132,643	3,664	[illegible]
Ogle	421,566	270,469	368,681	153,591	7,245	[illegible]
Peoria	409,644	375,937	344,575	746,662	6,454	[illegible]
Perry	43,869	29,157	24,556	20,436	1,364	[illegible]
Piatt	160,618	129,970	125,279	160,416	3,654	[illegible]
Pike	343,836	216,129	221,318	218,078	10,069	[illegible]
Pope	83,074	81,783	31,175	13,626	7,515	[illegible]
Pulaski	29,608	17,850	12,410	14,070	387	[illegible]
Putnam	92,157	93,057	62,000	110,405	1,561	[illegible]
Randolph	120,784	84,064	45,136	50,303	7,390	[illegible]
Richland	57,921	64,638	34,019	27,977	2,916	[illegible]
Rock Island	255,344	176,855	203,870	223,801	2,614	[illegible]
Saline	85,806	85,489	20,840	13,370	1,921	[illegible]
Sangamon	423,521	398,953	388,012	446,003	14,896	[illegible]
Schuyler	244,590	131,836	176,060	159,134	4,161	[illegible]
Scott	141,704	93,007	65,952	77,696	5,253	[illegible]
Shelby	320,153	286,605	242,592	206,625	12,094	[illegible]
Stark	284,895	233,155	136,886	91,736	6,675	[illegible]
St. Clair	167,779	102,177	62,451	25,223	4,484	[illegible]
Stephenson	340,366	246,126	244,484	118,398	7,091	[illegible]
Tazewell	295,868	213,693	161,302	175,755	7,063	[illegible]
Union	96,420	76,786	34,425	39,676	2,509	[illegible]
Vermilion	352,921	286,593	398,235	316,353	19,190	[illegible]
Wabash	43,070	36,225	25,716	11,522	2,500	[illegible]
Warren	416,064	237,256	261,260	200,106	5,890	[illegible]
Washington	86,040	54,108	59,243	50,048	2,312	[illegible]
Wayne	126,392	130,293	82,342	57,635	7,137	[illegible]
White	145,309	142,200	51,325	50,531	3,361	[illegible]
Whiteside	305,299	296,343	348,348	819,862	5,440	[illegible]
Will	309,527	223,202	478,708	341,579	7,875	[illegible]
Williamson	85,132	70,006	17,539	19,679	3,212	[illegible]
Winnebago	202,418	162,394	202,810	99,934	10,494	[illegible]
Woodford	322,522	293,689	203,209	124,110	2,775	[illegible]
Total	$22,137,461	$16,640,061	$17,026,130	$16,751,450	$652,465	[illegible]

Counties.	Number of hogs assessed May, 1880.	Per ct. lost by disease	Number lost by disease.	Av. weight dead hogs—pounds.	Total loss by disease in pounds.	Average value per cwt.	Amount of loss 1880.	Amount of loss 1879.	Amount of loss 1878.	Amount of loss 1877.	Amount of loss 1876.
Adams	58,054	14	8,127	116	942,732	$4 05	$38,179	$8,654	$78,321	$34,755	$59,910
Alexander	5,697	15	854	56	47,824	3 25	1,553	1,232	1,068	1,635	185
Bond	14,888	8	1,191	60	71,460	3 95	2,824	4,559	7,173	12,847	7,726
Boone	15,341	.....	.....	.....	.....	.....	.....	4,660	3,903	4,763	.....
Brown	21,352	3	640	116	74,240	3 65	2,708	3,472	7,165	6,195	7,141
Bureau	73,176	18	13,172	175	2,305,100	4 00	92,204	24,529	1,837	3,062	1,756
Calhoun	9,394	10	939	100	93,900	4 00	3,756	.....	.....	2,827	6,835
Carroll	35,082	10	3,508	60	210,480	4 25	8,946	25,629	40,484	62,191	7,867
Cass	12,688	.....	.....	.....	.....	.....	.....	2,194	6,080	6,000	21,859
Champaign	56,367	5	2,818	75	211,350	4 00	8,452	4,053	15,591	24,231	50,684
Christian	47,002	6	2,820	75	211,500	4 05	8,566	5,732	28,208	29,820	26,203
Clark	21,358	10	2,135	100	213,500	3 95	8,433	8,410	10,438	12,073	14,151
Clay	16,742	9	1,507	93	140,151	3 60	5,044	1,139	1,615	1,464	5,439
Clinton	13,520	10	1,352	100	135,200	3 20	4,326	997	4,806	9,572	7,305
Coles	35,052	5	1,753	85	149,005	3 55	5,289	10,413	10,519	4,713	51,706
Cook	15,645	3	469	40	18,760	4 60	865	1,060	.....	.....	.....
Crawford	20,267	11	2,229	96	213,984	3 95	8,453	3,270	5,727	27,252	.....
Cumberland	15,974	10	1,597	100	159,700	3 80	6,069	1,455	2,121	5,900	14,125
DeKalb	42,279	7	2,959	50	147,950	4 20	6,212	6,731	29,180	27,394	2,979
DeWitt	28,468	30	8,540	80	683,200	3 90	26,645	12,949	18,109	15,676	50,229
Douglas	25,992	6	1,559	115	179,285	3 95	7,082	6,065	22,768	.....	19,889
DuPage	14,905	.....	.....	.....	.....	.....	.....	2,149	.....	822	.....
Edgar	32,687	7	2,288	100	228,800	4 00	9,152	2,271	12,296	10,665	17,865
Edwards	13,214	6	793	$100	79,300	3 85	3,053	1,127	866	5,450	1,107
Effingham	16,232	10	1,623	150	243,450	3 60	8,762	.....	6,797	22,534	4,893
Fayette	33,933	12	4,072	80	325,760	3 65	11,892	8,903	6,241	49,720	.....
Ford	22,978	2	459	70	32,130	4 20	1,348	2,620	6,939	6,758	2,932
Franklin	14,822	5	741	100	74,100	3 75	2,779	2,812	4,115	9,689	3,714
Fulton	71,057	4	2,842	90	255,780	3 85	9,848	3,838	52,524	35,944	122,951
Gallatin	15,104	10	1,510	57	86,070	3 40	2,927	1,363	911	7,176	4,617
Greene	27,048	5	1,352	$150	202,800	4 00	8,112	4,599	7,108	15,303	23,458
Grundy	16,940	4	678	125	84,750	3 90	3,303	2,811	2,787	3,514	.....
Hamilton	15,894	30	4,768	87	414,816	3 90	16,177	7,199	1,428	2,950	2,289
Hancock	58,714	3	1,761	103	181,383	4 25	7,709	10,030	34,673	24,890	26,703
Hardin	9,176	5	459	100	45,900	3 50	1,606	432	1,140	12,585	1,908
Henderson	27,288	4	1,091	90	98,190	4 05	3,977	2,844	23,753	13,560	34,523
Henry	86,198	6	5,172	139	718,908	4 15	29,834	21,281	24,399	32,978	19,350
Iroquois	55,712	5	2,786	70	195,020	3 85	7,507	3,264	22,602	5,763	7,714
Jackson	19,298	19	3,667	131	480,377	3 45	16,574	.....	.....	12,387	2,829
Jasper	17,803	10	1,780	60	106,800	3 85	4,112	5,101	4,446	8,676	2,964
Jefferson	21,165	14	2,963	91	269,633	3 35	9,032	5,470	5,031	13,017	5,308

Hog Cholera—Continued.

Counties.	Number of hogs assessed May, 1880.	Per ct. lost by disease	Number lost by disease.	Av. weight dead hogs—pounds.	Total loss by disease, in pounds.	Average value per cwt.	Amount of loss 1880.	Amount of loss 1879.	Amount of loss 1878.	Amount of loss 1877.	Amount of loss 1876.
Jersey	19,961	3	599	80	47,920	$4 15	$1,988	$529	$3,410	$2,278	$6,433
JoDaviess	40,119	5	2,006	125	250,750	4 20	10,529	8,669	12,492	5,344	1,043
Johnson	13,740	1	137	150	20,550	3 90	799	.....	2,298	3,830	1,301
Kane	27,287	4	1,091	150	163,650	4 15	6,789	14,272	7,123	15,030	3,603
Kankakee	13,308	2	266	150	39,900	3 60	1,436	.....	2,957	1,962	688
Kendall	24,379	22	5,363	112	600,656	4 00	24,024	12,555	26,640	29,061	9,836
Knox	56,205	13	7,307	70	511,490	4 15	21,227	14,226	43,842	20,390	61,232
Lake	12,769	.....	.....	.....	.....	.....	.....	.....	.....	16,426	.....
LaSalle	66,234	9	5,961	175	1,043,175	4 25	44,336	19,155	99,389	33,962	4,806
Lawrence	17,269	5	863	82	70,766	3 60	2,549	3,294	5,457	10,867	8,657
Lee	31,858	1	318	90	28,620	3 90	1,115	4,910	38,278	.....	.....
Livingston	74,662	5	3,733	75	279,975	4 15	11,620	4,067	.....	14,609	.....
Logan	43,386	4	1,735	137	237,695	4 10	9,746	6,439	9,725	17,952	98,782
Macon	46,585	10	4,658	100	465,800	4 15	19,331	6,146	33,305	21,640	17,900
Macoupin	49,768	3	1,493	30	44,790	3 95	1,770	2,268	4,009	11,547	6,715
Madison	41,568	.....	.....	.....	.....	4 00	.....	4,214	19,173	16,621	7,552
Marion	21,642	1	216	150	32,400	4 00	1,296	2,850	3,767	2,321	9,618
Marshall	29,038	5	1,452	$150	217,800	4 50	9,801	2,006	1,323	15,975	11,700
Mason	14,781	.....	.....	.....	.....	4 00	.....	.....	5,438	24,140	1,749
Massac	10,908	10	1,090	100	109,000	3 50	3,815	2,926	3,971	2,529	.....
McDonough	56,877	11	6,256	87	544,272	4 05	22,044	4,810	23,260	17,478	36,127
McHenry	27,449	3	823	50	41,150	3 90	1,603	1,320	3,756	2,174	3,903
McLean	95,113	15	14,267	140	1,997,380	4 15	82,892	33,930	71,634	24,347	27,436
Menard	17,287	11	1,901	96	182,496	3 90	7,117	1,605	11,469	27,120	30,963
Mercer	53,989	12	6,479	125	809,875	4 00	32,396	27,992	85,166	31,038	25,701
Monroe	12,254	.....	.....	.....	.....	.....	.....	.....	6,393	3,175	.....
Montgomery	41,567	5	2,078	$100	207,800	4 00	8,312	18,249	12,836	23,090	11,171
Morgan	13,325	6	799	90	71,910	4 00	2,876	1,377	8,486	26,597	44,232
Moultrie	22,342	22	4,915	120	589,800	3 75	22,117	1,980	10,735	4,050	9,216
Ogle	51,342	1	513	175	89,775	4 25	3,816	3,025	33,227	104,468	8,818
Peoria	43,349	5	2,167	145	314,215	4 50	14,139	3,855	66,792	9,150	41,736
Perry	8,953	3	268	80	21,440	3 50	749	1,554	1,152	5,972	2,487
Piatt	27,323	7	1,913	71	135,823	3 80	5,160	2,582	9,924	38,372	45,246
Pike	54,577	4	2,183	72	157,176	4 00	6,288	7,230	20,928	21,933	48,012
Pope	15,667	.....	.....	.....	.....	.....	.....	.....	1,913	5,331	4,547
Pulaski	4,471	.....	.....	.....	.....	.....	.....	.....	260	4,183	.....
Putnam	11,264	5	563	87	48,981	4 25	2,082	966	1,235	2,949	2,479
Randolph	21,704	.....	.....	.....	.....	.....	.....	6,404	7,345	14,292	10,490
Richland	13,134	15	1,970	62	122,140	3 50	4,273	5,540	651	4,721	1,753
Rock Island	31,671	9	2,850	123	350,550	4 25	14,896	6,857	7,630	16,662	12,082

Schuyler											
Scott	17,852	7	1,250	120	150,000	4 20	6,300	7,973	2,075	13,435	8,508
Shelby	49,579	3	1,487	100	148,700	4 10	6,097	6,184	13,365	12,217	34,161
Stark	32,011	2	640	187	119,680	3 90	4,668	11,245	17,744	52,670	27,308
St. Clair	22,805									14,720	5,710
Stephenson	44,585	7	3,121	92	287,132	4 10	11,771	16,438	15,402	19,993	7,658
Tazewell	37,351	6	2,241	87	194,967	4 10	7,995	7,710	15,710	47,815	32,532
Union	18,366	5	918	100	91,800	3 75	3,442				
Vermilion	58,550	6	3,513	62	217,805	3 95	8,603	5,855	11,046	45,973	27,888
Wabash	6,948	2	139	75	10,425	3 85	400	1,059	1,140	3,641	8,872
Warren	53,541	5	2,677	68	182,036	4 00	7,280	7,426	30,838	22,327	11,586
Washington	15,609							720	9,903	7,361	2,269
Wayne	22,929	10	2,292	100	229,200	3 50	8,022	5,951	1,225	3,665	3,146
White	26,360	18	4,745	57	270,465	3 50	9,467	7,888	6,905	16,692	8,022
Whiteside	41,049	5	2,052	100	205,200	4 25	8,721	11,946	3,416	24,067	6,932
Will	28,428										
Williamson	19,304	21	4,054	88	356,752	3 15	11,236	2,176	7,724	9,260	5,409
Winnebago	25,347							2,697	19,672	1,313	
Woodford	41,699	2	834	25	20,850	3 85	801	6,162	23,595	21,744	
Total	3,133,557	7	227,259	104	23,630,307	$3 95	$937,293	$588,487	$1,438,589	$1,583,415	$1,576,012

SHEEP KILLED BY DOGS.

Counties.	Number sheep assessed May, 1880	Per cent. killed by dogs	Number killed	Value per head	Amount loss in 1880	Amount loss in 1879	Amount loss in 1878	Amount loss in 1877	Amount loss in 1876
Adams	13,382	7	937	$3 15	$2,851	$798	$1,777	$1,599	
Alexander	1,125	2	22	2 00	44	127			
Bond	9,509	2	180	2 00	360	501	354	333	[illegible]
Boone	17,493					1,130	1,298	2,907	[illegible]
Brown	7,335	2	147	3 35	492	279	500		
Bureau	8,719								[illegible]
Calhoun	845	5	42	3 25	136		65	49	111
Carroll	3,996					1,344	571	684	[illegible]
Cass	2,026	2	40	4 00	160	87	38	46	[illegible]
Champaign	10,271	5	513	2 50	1,282	741	392	736	[illegible]
Christian	10,556	2	211	3 50	738	471	293		
Clark	9,660	6	580	2 50	1,450	1,412	1,154	1,078	[illegible]
Clay	10,734	9	966	2 75	2,656	426	475	718	[illegible]
Clinton	7,504	3	225	2 50	562	366	332	199	[illegible]
Coles	9,200	3	276	2 50	690	1,188	278		[illegible]
Cook	5,475	2	109	2 40	262	903			
Crawford	9,951	3	298	2 80	834	639	296	481	
Cumberland	5,080	5	254	3 35	851	604			[illegible]
DeKalb	12,466	3	374	4 00	1,496	2,169	303	1,340	[illegible]
DeWitt	12,972	2	259	2 00	518			567	
Douglas	6,604	2	132	2 90	383	685	197		[illegible]
DuPage	12,164	1	122	3 50	427	669	369	399	[illegible]
Edgar	14,890	3	447	3 85	1,721	2,554	729	444	[illegible]
Edwards	11,226					258	356	320	
Effingham	5,384					926			[illegible]
Fayette	14,496	8	1,160	2 25	2,610	1,151	918	998	
Ford	1,768							112	
Franklin	4,519	5	226	2 00	452	459	468	538	[illegible]
Fulton	20,299	2	405	2 50	1,012	899	162		
Gallatin	3,310					148		127	[illegible]
Greene	10,548	5	527	3 15	1,660	903	1,068	370	[illegible]
Grundy	2,232	2	45	4 00	180	178	77	258	
Hamilton	13,084	5	654	2 00	1,308	852	478	440	
Hancock	5,008	2	100	3 00	300		194	245	[illegible]
Hardin	2,295	1	23	1 50	34	61	22		[illegible]
Henderson	2,521								
Henry	5,949	1	59	4 00	236		144	570	
Iroquois	5,562	1	56	3 00	168	209		68	
Jackson	3,344	3	100	2 30	230	258		301	[illegible]
Jasper	6,834	7	478	2 10	1,004	1,095	307	1,057	
Jefferson	9,348	3	280	2 50	700	1,533	540	636	1,134
Jersey	5,470	1	55	2 50	137		215		
JoDaviess	10,987	1	110	2 65	291	1,055	312	1,196	[illegible]
Johnson	4,210	1	42	2 50	105	229		310	[illegible]
Kane	12,737	2	250	3 75	956	835	715	2,295	
Kankakee	3,226								[illegible]
Kendall	8,970	2	179	2 85	510		1,490	1,394	1,36
Knox	16,172	6	970	2 40	2,328	1,352	699	564	1,884
Lake	69,857	3	2,096	3 00	6,288	4,584	971	9,560	
LaSalle	14,891	2	298	3 75	1,117	835	717	1,537	[illegible]
Lawrence	5,822	5	291	3 00	873	781	436	530	[illegible]
Lee	9,352	1	93	3 90	279	384	414	1,081	[illegible]
Livingston	5,136	5	257	4 00	1,028	276			
Logan	8,712	2	174	3 25	565	486	131	871	
Macon	9,284	10	928	3 00	2,784	601	318		[illegible]
Macoupin	20,979	2	419	3 00	1,257	1,038	712	1,739	[illegible]
Madison	9,341	2	187	3 50	654	681	358	354	[illegible]
Marion	11,111					345	158		[illegible]
Marshall	6,270	2	125	2 60	325	303			
Mason	518								
Massac	1,874					92			
McDonough	9,616	5	481	2 50	1,202		503	430	[illegible]

Sheep Killed by Dogs—Continued.

Counties.	Number sheep assessed, May, 1880	Per cent. killed by dogs	Number killed	Value per head	Amount loss in 1880	Amount loss in 1879	Amount loss in 1878	Amount loss in 1877	Amount loss in 1876
›nry	52,408	2	1,048	$2 20	$2,305	$1,057	$1,724	$3,990	$829
an	27,389	2	547	3 60	1,969	2,507	833	755	1,574
rd	5,865	2	117	2 85	333	228	375	126	154
›r.	5,548	3	166	3 45	573	262	630	600	.....
oe	1,480	.....	.....	.....	.....	.....	.....	.....	.....
gomery	14,420	5	721	2 90	2,091	1,468	1,124	.....	928
an	12,646	3	379	6 50	2,463	.....	1,117	1,460	.....
trie	5,141	2	103	3 00	309	1,336	403	152	.....
	10,169	1	102	4 00	408	.....	.....	1,149	911
a	6,886	2	138	3 85	531	177	200	.....	.....
	3,104	1	31	1 50	46	49	176	240	.....
	5,070	2	101	3 25	328	289	564	612	152
	12,159	4	486	3 50	1,701	1,155	1,580	1,651	1,007
	7,514	5	376	1 50	564	870	507	328	.....
›ki	698	1	7	1 40	10	21	48	.....	.....
›m	2,231	1	22	3 30	73	51	42	123	62
olph	9,094	1	91	2 50	227	949	1,230	1,362	.....
and	6,943	5	347	2 25	781	470	327	493	.....
Island	3,083	5	154	2 50	385	545	322	.....	.....
e	6,860	8	549	1 75	961	.....	.....	271	443
amon	19,739	2	395	3 00	1,185	938	1,085	1,188	1,226
yler	5,831	10	583	3 00	1,749	693	599	620	.....
	6,149	2	123	4 75	584	140	119	.....	.....
›y	16,976	2	339	2 50	847	598	566	418	.....
	7,119	2	142	3 30	469	1,896	192	.....	538
air	5,605	1	56	3 00	168	204	94	506	.....
›enson	11,254	3	338	2 75	929	857	270	1,242	.....
well	10,090	1	101	3 00	303	512	1,775	657	301
n	3,747	5	187	2 25	421	302	464	.....	.....
›ilion	26,873	1	269	3 25	874	4,033	1,763	3,182	623
›sh	4,067	5	203	2 75	558	235	338	.....	.....
›en	7,150	2	143	3 00	429	132	99	153	464
›ington	5,778	1	58	3 00	174	138	609	802	.....
ne	12,263	3	367	2 50	917	1,096	461	459	1,049
e	6,721	5	336	2 00	472	439	384	515	165
eside	7,557	.....	.....	.....	.....	248	464	.....	.....
	7,288	.....	.....	.....	.....	204	396	.....	.....
amson	7,768	3	233	2 00	466	564	314	694	371
›ebago	15,828	3	475	3 00	1,425	777	295	524	.....
dford	3,967	3	119	3 50	416	136	.....	118	.....
otal	964,696	3	27,159	$2 80	$76,050	$65,384	$43,885	$63,752	$30,578

VALUE FARM PRODUCTS, ETC., 1880.

Counties.	Value farm crops	Total acreage in county as returned to Auditor, 1878, except as noted	Average value of farm crops per acre in county	Assessed value per acre of land, 1880	Equalized value per acre—50 per cent. valuation	Full value	Per cent. of value of farm crops, 1880, to full val. of land per acre
Adams	$3,092,445	528,005	$5 85	$15 22	$15 68	$31 36	[illegible]
Alexander	307,097	109,381	2 80	3 50	3 04	6 08	[illegible]
Bond	1,052,343	252,311	4 17	8 58	7 38	14 76	[illegible]
Boone	1,045,482	177,813	5 87	17 54	15 79	31 58	[illegible]
Brown	936,584	190,247	4 92	8 00	8 16	16 32	[illegible]
Bureau	3,678,244	548,331	6 70	13 84	14 67	29 34	[illegible]
Calhoun	703,818	166,213	4 23	4 51	3 88	7 76	[illegible]
Carroll	1,971,075	288,322	6 83	12 78	10 87	21 74	[illegible]
Cass	1,014,136	240,742	4 21	11 26	11 26	22 52	[illegible]
Champaign	3,680,629	621,693	5 92	10 67	12 80	25 60	[illegible]
Christian	3,529,629	447,580	7 88	13 30	13 30	26 60	[illegible]
Clark	1,293,063	322,122	4 01	5 07	6 23	12 46	[illegible]
Clay	896,763	280,590	3 19	6 27	6 09	12 18	[illegible]
Clinton	2,054,734	305,381	6 72	7 78	8 24	16 48	[illegible]
Coles	1,557,560	321,819	4 83	10 57	12 47	24 94	[illegible]
Cook	3,442,844	514,092	6 69	21 19	25 64	51 28	[illegible]
Crawford	1,225,869	275,601	4 45	4 68	5 10	10 20	[illegible]
Cumberland	841,241	220,829	3 81	3 43	4 97	9 94	[illegible]
DeKalb	3,393,634	369,363	8 49	16 41	12 97	25 94	[illegible]
DeWitt	1,213,858	251,667	4 82	13 24	14 69	29 38	[illegible]
Douglas	1,714,764	263,066	6 51	10 72	12 22	34 44	[illegible]
DuPage	1,668,577	206,077	8 09	19 90	21 09	42 18	[illegible]
Edgar	2,928,898	398,600	7 34	10 08	11 99	23 98	[illegible]
Edwards	552,783	140,598	3 93	8 22	7 90	15 80	[illegible]
Effingham	1,195,888	276,610	4 32	5 52	5 90	11 80	[illegible]
Fayette	1,476,713	414,804	3 56	4 66	6 10	12 20	[illegible]
Ford	1,767,689	$314,759	5 61	6 99	8 25	16 50	[illegible]
Franklin	580,279	$248,910	2 33	3 08	3 08	6 16	[illegible]
Fulton	2,502,524	549,973	4 55	13 22	13 22	26 44	[illegible]
Gallatin	535,749	200,565	2 67	4 53	3 54	7 08	[illegible]
Greene	2,487,762	343,197	7 24	11 65	10 96	21 92	[illegible]
Grundy	1,605,752	268,782	5 97	13 13	13 00	26 00	[illegible]
Hamilton	698,697	273,962	2 55	3 13	3 13	6 26	[illegible]
Hancock	3,006,643	493,644	6 09	12 87	12 87	25 74	[illegible]
Hardin	258,528	109,408	2 36	4 43	2 97	5 94	[illegible]
Henderson	1,356,465	238,791	5 68	10 11	9 50	19 00	[illegible]
Henry	3,482,710	515,379	6 75	17 55	14 04	28 08	[illegible]
Iroquois	3,074,358	705,518	4 35	9 90	9 31	18 62	[illegible]
Jackson	846,980	319,906	2 64	3 33	3 63	7 26	[illegible]
Jasper	879,079	310,642	2 82	3 56	5 02	10 04	[illegible]
Jefferson	1,147,366	335,477	3 42	3 26	3 94	7 88	[illegible]
Jersey	1,862,231	233,233	7 98	14 17	13 60	27 20	[illegible]
JoDaviess	1,759,184	377,451	4 66	7 53	6 78	13 56	[illegible]
Johnson	444,618	209,413	2 12	1 61	2 98	5 96	[illegible]
Kane	1,956,146	323,135	6 05	18 81	16 56	33 12	[illegible]
Kankakee	1,923,010	420,653	4 57	7 95	8 74	17 48	[illegible]
Kendall	1,784,776	202,376	8 81	17 95	14 90	29 80	[illegible]
Knox	3,490,254	448,417	7 78	18 46	15 70	31 40	[illegible]
Lake	1,326,693	284,273	4 68	12 81	12 81	25 62	[illegible]
LaSalle	5,170,046	711,852	7 26	19 48	15 59	31 18	[illegible]
Lawrence	1,145,618	229,411	4 99	5 02	5 67	11 34	[illegible]
Lee	2,338,064	457,206	5 12	14 97	12 43	24 86	[illegible]
Livingston	2,995,625	655,040	4 57	11 10	11 32	22 64	[illegible]
Logan	2,522,738	391,946	6 44	14 14	16 97	33 94	[illegible]
Macon	2,675,164	366,266	7 30	16 85	15 68	31 36	[illegible]
Macoupin	4,255,846	543,217	7 83	7 37	13 63	27 26	[illegible]
Madison	4,658,575	448,614	10 38	18 01	18 01	36 02	[illegible]
Marion	1,216,074	336,758	3 61	6 35	7 43	14 86	[illegible]

Value Farm Products, etc., 1880—Continued.

Counties.	Value farm crops	Total acreage in county as returned to Auditor, 1879, except as noted	Average value of farm crops per acre in county	Assessed value per acre of land, 1880	Equalized value per acre—50 per cent. valuation	Full value	Per cent. of value of crops, 1880, to full val. of land per acre
all	$1,805,296	$247,970	$7 28	$14 35	$12 49	$24 98	29
	722,046	351,328	2 05	7 92	8 63	17 26	45
c	435,257	$149,051	2 92	3 42	3 11	6 22	46
ough	1,883,491	$364,090	5 17	14 88	14 44	28 88	17
ary	2,685,615	384,265	6 98	14 94	12 25	24 50	28
an	4,720,811	744,235	6 34	15 00	16 50	33 00	18
d	1,152,760	199,741	5 77	15 17	14 42	28 84	20
r	2,206,528	$347,823	6 34	12 41	12 17	24 34	26
e	1,791,374	231,653	7 73	6 44	7 60	15 20	50
omery	3,978,721	$439,606	9 05	10 27	9 67	19 34	46
n	3,257,652	$353,352	9 22	18 24	15 69	31 38	29
rie	1,173,240	216,211	5 42	9 72	10 98	21 96	24
	3,109,698	$479,193	6 49	17 01	13 10	26 20	24
	2,963,204	386,927	7 65	17 50	15 58	31 16	24
	490,236	$245,963	1 99	5 32	5 11	10 22	19
	1,493,302	275,577	5 41	13 36	12 69	25 38	21
	3,331,483	$511,963	6 50	11 45	10 99	21 98	29
	666,517	$232,966	2 86	2 85	2 93	5 86	48
ki	655,132	$112,743	5 81	4 30	3 57	7 14	81
m	604,941	105,997	5 71	13 02	13 15	26 30	21
lph	1,779,712	357,687	4 97	6 17	7 09	14 18	35
and	650,513	227,274	2 86	5 88	5 06	10 12	28
Island	1,501,663	266,571	5 63	12 10	10 89	21 78	25
	412,290	240,628	1 71	2 92	2 92	5 84	29
mon	3,465,724	$547,706	6 32	18 23	17 14	34 28	18
ler	1,220,797	276,303	4 41	9 24	8 79	17 56	25
	976,674	156,794	6 22	12 81	11 02	22 04	28
y	2,465,461	$484,725	5 08	10 19	10 19	20 38	24
	1,333,137	$180,961	7 36	19 87	15 10	30 20	24
air	3,733,872	$416,466	8 96	26 50	22 26	44 52	20
enson	2,504,108	$357,240	7 00	17 33	14 38	28 76	24
well	2,531,766	408,748	6 19	15 52	15 06	30 12	20
	795,914	$220,086	3 61	4 55	3 91	7 82	46
ilion	4,012,153	$564,702	7 10	11 92	13 59	27 18	26
sh	488,659	$152,599	3 20	7 07	7 35	14 70	21
en	2,317,501	$339,801	6 82	15 08	14 93	29 86	22
ington	1,728,947	$339,358	5 09	8 77	8 68	17 36	29
e	1,081,534	449,610	2 40	2 95	3 68	7 36	32
	1,048,892	$313,814	3 34	2 62	3 95	7 90	42
eside	2,434,944	432,412	5 63	12 86	11 57	23 14	24
	4,136,026	524,692	7 88	15 47	14 23	28 46	27
mson	488,032	254,843	1 91	3 05	3 14	6 28	30
ebago	2,086,835	322,102	6 47	13 91	13 08	26 16	24
lford	1,842,261	$337,182	5 46	14 90	14 45	28 90	18
tal	$96,389,633	34,582,929	$5 67	.....	.....	.....	27

rn, meadows, winter wheat, spring wheat, oats, pastures, orchards, rye, barley, Irish oes, sorghum, flax seed.

sessors' returns, 1879.

sessors' returns, 1880.

Canada Thistles.

An act concerning Canada Thistles, approved and in force March 15, 1872, provides that—

"The commissioner shall, annually, before the first day of November, make a written report to the supervisor of the town, or to the county commissioners, as the case may be, which report shall be filed with the town clerk, or, in counties not under township organization, with the county clerk. The report made to the supervisor shall be publicly read at the annual town meeting. Said report shall state—

"*First*—Whether there are or not any Canada thistles growing in the town or precinct.

"*Second*—If any are growing, where, and how many, and when and how introduced.

"*Third*—A detailed statement of his treatment of each infected tract, with cost and result.

"*Fourth*—He shall report such other matters as may be required of him by the board of town auditors or by the county commissioners.

"*Fifth*—He shall state his views on their further treatment, and make such suggestions and recommendations as he may deem proper and useful.

"And he shall also forward a copy of said report to the Secretary of the State Board of Agriculture, who shall collate and report the same to the Governor by the first day of December of each year."

The act in relation to Canada thistles has been observed to a very limited extent.

The following are the only reports made to the Secretary of the State Board of Agriculture for the year 1880:

CHAMPAIGN COUNTY.

Report of L. D. BREWER, Commissioner Canada Thistles, St. Joseph Township.

In my report of October 28, 1879, I stated that I had found three distinct patches of Canada thistles, and gave their location.

Since making that report, I have found but one other patch in my township, consisting of about one-eighth of an acre, and located near the N. E. corner of the N. W. ¼ of the S. W. ¼ of section 26, on pasture land.

My mode of eradicating the thistles is given in my last report, viz: As soon as possible, mow the thistles off close to the ground, rake them together and burn—one patch was cut and salt put on the roots. This practice has proved successful in eradicating two of the patches—the other patch still shows some signs of vitality. I have found no beneficial results from the use of salt.

It is recommended that the Canada thistles be plowed or grubbed out thoroughly in the months of May and August.

The new patch was not discovered until last August. The patch was thoroughly plowed; have not yet succeeded in killing the thistle.

I am unable to account for the introduction of the Canada thistle into this township. So far, they have been found on timber pasture land, and not on the prairie soil.

The expense attending the 2¾ days work as thistle commissioner since last report is $5.50.

COOK COUNTY.

Report of CORNELIUS HARKINS, Commissioner Canada Thistles, Lemont Township.

There are at the present time numerous patches of Canada thistles in this township, nearly all of which are in a condition of vigorous growth, and promise to spread through the township indefinitely, unless efforts are continued for their extermination. These patches are sub-divided and scattered as follows: Six patches, covering altogether about one acre, on the property of the Illinois Stone Company; three patches on the property of the Chicago, Alton and St. Louis Railroad Company, separated at a distance of about a quarter of a mile—these patches measure altogether in extent about a quarter of an acre; one patch on Singer & Talcott Stone Company's property, between the river and canal, measuring 25x10 feet; one patch, 18x30 feet, on a farm in the west part of the town, occupied by a man named Murphy; one patch, about four perches square, on Peter McCanna's farm, and several plants on D. C. Skelley's property, adjoining; one patch, 15x30 feet, on Edwin Walker's property, near his quarry; three large patches on the highway from from Romeo to the Sag Bridge, in extent altogether 6 feet wide by 150 feet in length; a patch on James Monaghan's farm is nearly exterminated, only one or two plants having appeared above the surface; one patch, 10x15 feet, on Charles Claffey's farm; one patch, 50x100 feet, on widow Reed's farm; one patch, 15x25 feet, on McGraw's farm; three patches on Jourdan's farm, now occupied by a man named Valentine—extent of these patches, one-half acre; about twenty-five stalks on a lot of N. J. Brown's, within the village of Lemont.

The owners or occupants of property on which thistles have been growing during the past season were duly notified to take steps to exterminate them, under the penalty provided by law. In all cases the notifications have been complied with, all the parties so notified having the thistles growing on their property cut down.

I have given personal attention to the patches growing on the highway from Romeo to Sag Bridge, having cut these patches down four times during the past season, a method I have found quite effectual.

The experiment of using salt on the plants, although commonly considered an effectual remedy, is, in my judgment, altogether inefficient.

Though I do not recommend constant cutting down of the plants at regular intervals as a certain remedy for their eradication, I regard this method, together with grubbing the plants out by the roots, and afterwards burning the same so that the seed will be destroyed, as the most effectual remedy which has yet come under my observation.

DE KALB COUNTY.

Report of J. W. Ward, Commissioner Canada Thistles, Afton Township.

Thistles are now growing on farms as follows: 1—Andrew Peterson; 2—Mr. Johnson; 3—Mr. Clark's farm, formerly owned by Mr. Mulsay; 4—David Smith; 5—the farm formerly owned by W. R. Campbell; 6—William Lyons and A. B. Wilson; 7—C. O. Boynton; 8—L. M. McEwen; 9—S. W. Patten; 10—P. Murray.

The time and manner of the introduction of the thistles is unknown, except the patches on land of Mr. Mulsay and L. M. McEwen, which were both supposed to have been brought there by a threshing machine.

The treatment of each infected tract of land is as follows:

P. Murray's land was mowed with machine July 3d; August 20, plowed and covered with salt; September 2, dug with hoe; expense, $9.30.

Cut with hoe and pulled up all the thistles I could find, four times, on land of Messrs. Lyons and Wilson; expense $2.

On Mr. Mulsay's farm, picked seed bolls; expense, $1.

On C. O. Boynton's land, cut thistles with hoe three times, and covered with salt once; expense, $5.50.

The thistles should be treated the same way next season, and some of the patches will probably be eradicated.

Report of W. O. Foster, Commissioner Canada Thistles, Squaw Grove Township.

Thistles are growing on the farms of Chris. Lang, F. M. James, B. C. Albee, J. T. Beetle and O. M. Tanner.

The patches on the above farms are small, and have received necessary attention, which, if continued, will exterminate the thistles.

Larger patches are growing on the farms of Jacob Marsch, B. and O. Albee, Chris. Hartman, William Hartman, John Ott, Wm. Van Ohlen, Stephen Howell, W. M. Sebree, Jacob Milton and Chris. Rinegardt.

The last named patches are increasing each year, and proper attention has not been given to the matter of eradicating the pest, and unless more time and money is spent to destroy them, they will soon become a terrible pest to the entire township.

DE WITT COUNTY.

Report of P. B. Herrington, Commissioner Canada Thistles, Wapella Township.

There are four or five patches of thistles in the town, supposed to have been introduced in seed wheat. The only effectual way of destroying the thistles is to thoroughly plow the patches for several seasons, and whenever they make their appearance above ground.

KANE COUNTY.

Report of R. CONLEY, Commissioner Canada Thistles, Town of Batavia.

There are to my knowledge some seventeen patches of Canada thistles in this town—one patch on Fred. Benson's land, two rods square; on land of John Harts, patch two rods wide by six rods long; on land of R. Bremford, patch two rods square; on the land of the Lockwoods' estate, and near the big culvert; on land owned by J. Stevens, patch of two acres, more or less; a patch on Baird's land, east of the C., B. & Q. R. R.; a patch on the estate of Fords; a patch on land once owned by Salem Town; a patch on land of Frank Hill, about 2x8 rods; a patch on land of Dr. Clark, 6x6 rods; a patch on land of G. Weaver, about 8x12 feet; two patches on A. Weaver's land; one patch, about four rods square, on Sol. Trumbull's land.

There are other patches reported in different parts of the town.

The treatment has been varied. In some cases, salt has been used with good results. Some have cut them with a scythe three or four times a year, and some have cut them down close to the ground as soon as they appeared.

It is impossible to determine how they were introduced into this locality.

The expense to the town in this work has been $24.

No separate account has been kept as to the expense on the several patches.

The best treatment is to keep them cut down close to the ground as fast as they appear above ground.

LASALLE COUNTY.

Report of THOMAS MILES, Commissioner Canada Thistles, Town of Ophir.

Canada thistles are growing on the farm of Lydia Ann Austin, which were introduced in buckwheat brought from Michigan.

The plan adopted is to cut them down or pull them up just as they commence to blossom, and if followed up will entirely eradicate the weed.

MCLEAN COUNTY.

Report of VINCENNES BOWERT, Commissioner Canada Thistles, Cropsey Township.

There are three new patches and two old patches of Canada thistles in the township—one patch, 25 rods square, on the farm of Solomon Mason, south of the northeast 40 of the southeast ¼ of section 37.

There are two patches on the Kimbrough farm—one is northwest of the house, covering about half an acre; this patch was spaded once and plowed twice; cost of tending, $1.25. The other patch is near the east line and about 40 rods from the south line of the farm; this piece was in corn, and in cultivating the crop the thistles were pulled up.

There is a small patch on the east end of the farm of John Miners. The patch was manured to induce a rapid growth, with the intention of cutting them when in blossom, but a few days before they were ready the hogs rooted them up and kept them down during the season.

There is a patch, about twenty rods square, on C. O. Hay's farm, near the northwest corner. The ground was spaded over five times during the season, at an expense of $3.

The patches named above need further attention, and where thistles are found in corn fields they should be spaded up, and plowed up on grass land until subdued.

The thistles were introduced by sheep that were brought from the East.

WARREN COUNTY.

Report of JOHN P. TERPENING, Commissioner Canada Thistles, Town of Kelly.

Thistles are now growing on pasture lands owned by Josiah Ryner, described as follows: S. W. 40 of the S. E. ¼ of section 26, 12 N. W. This patch consists of one-eighth of an acre thickly set, with some scattering thistles. The thickly set spot was covered with combustibles, and burned, and then plowed. Salt was applied to the scattering plants. The cattle have been salted on the thickly seeded patch, and the few thistles that have made their appearance have been promptly cut off and salted. This treatment should be continued another year, to secure their ultimate eradication.

The little spot in Iona is about killed—treatment: cutting, plowing and salting.

British Agricultural Societies and Shows.

By Prof. G. E. MORROW, Illinois Industrial University.

During the summer of 1879, I attended the shows of the Royal Agricultural Society of England, at London; of the Highland and Agricultural Society of Scotland, at Perth—these being the national societies; of the Yorkshire Aricultural Society, at Leeds, this being one of the most important of the local shows; and of the Border Union Society, at Kelso, this being of interest as a specimen of the smaller societies holding a one-day show. At each I was very courteously treated, and given every reasonable opportunity to study the management. There are some marked points of difference between these and American societies and shows.

The societies depend more on large membership and membership fees, and less on receipts at the shows, than with us. The Royal English Society now has perhaps 9,000 members, most of them paying £1, or nearly $5, annually. The Scottish Society, which was organized 1785, and which has invested funds to amount of about $350,000, has perhaps 5,000 members, and an annual revenue, aside from receipts at the shows, of about £4,500.

The show at London involved a loss to the English Society of about $70,000, and but few of its shows have left a balance to the credit of the society. As a rule, the presidents of the national societies are noblemen. In 1879, the Prince of Wales was president of the English Society.

Each of the national societies publish very voluble reports. Probably no better collection of essays on agriculture can be found in the English language than is contained in these reports. The English Society, especially, employs a chemist, veterinarian, etc., and gives prizes of considerable value to those passing examination in agricultural studies. It also gives large prizes for farms in the district in which the show is held, each year. Careful and elaborate reports on these farms are published in the "Journal" of the society.

There were points of much interest at each of the shows I attended, some of which, perhaps, could be copied with advantage by American societies. I name the following:

1. The grounds are carefully and systematically arranged, and the exhibits carefully classified. Catalogues are prepared and sold,

which, for the large shows, contained plans of the show yard, showing where any class of animals or of machinery might be found. Exhibiters are not allowed to bring all their animals together; each must go to the place assigned for its class. At Kelso there were no sheds, only rows of posts and boards, but the place for each class and for each humber in the class was plainly indicated by large placards and numbers.

2. Entries are required to be made in advance of the opening of the show. This makes careful classification possible. It has the disadvantage of making it almost certain there will be some vacant stalls or pens, as not all the entries are forwarded.

3. The catalogues contain almost all the information an intelligent visitor needs. Each animal is entered under its class and number, with age, color, etc., and name and address of owner or breeder. At the larger shows, these catalogues are quite bulky, and are sold at one shilling. They sometimes have advertisements inserted.

4. It is insisted on that the show shall be in readiness in all departments on the morning of the first day. As a rule, all the awards of premiums are made on the first day. An especially high admission fee is charged: at London, 10 shillings, or $2.50. Prize lists are promptly printed and sold.

5. The published programme is carried out on time, weather permitting. Much is made of "parades" of live stock, once or twice daily. There are no races, no track, and little showing of horses in harness. The cattle and horses are judged in comparatively small rings, in which the breed and class being judged is prominently posted, as are the numbers of the prize-winning animals. Each animal, or the man in charge, carries the number conspicuously placed, both when showing or parading. In addition to the prizes, generally three in number, meritorious exhibits are "highly commended," or "commended." These honors were prized by exhibiters.

6. At the leading shows, the sheds and stables were canvass-covered. They were wide enough to allow visitors to be under shelter. The horse stalls were so arranged that visitors could not get to the horses, nor could the horse be shut out of sight of the visitors.

7. At the leading shows, a competent officer of the society makes an extended report on the exhibits in each general class, which is published in the "Journal."

8. Good order I found the rule. Liquors were sold freely, but I saw little drunkenness. No side-shows, no gambling, no loud talking in auction sales or otherwise, was allowed. The shows were strictly agricultural, except for a wide range of machinery.

Paris Universal Exposition, 1878.

REPORT ON LIVE STOCK.

BY SAMUEL J. DYSART.

The ground occupied by the stock exhibition was the *Esplanade des Invalides*, an open space and park lying between the *Hotel des Invalides* and the river Seine. It is extensive, and has many beautiful shade trees planted in rows. Between the trees long sheds and pens of graceful proportions were erected, in the most complete order of arrangement, and the animals were well cared for.

As might be expected at such an exhibition, the variety of breeds and the different family types of each species of stock were very great, ranging, to some extent, according to the character and soil of the country where grown and the manner of keeping. Much of the history of the country, the condition and intelligence of the people, may be read in the quality of their domestic animals. Where enterprise and intelligence go hand in hand, there we find improved breeds, and humane treatment of the same, while under other circumstances the condition of the stock is much inferior.

In order to convey to our people an idea of how few domestic animals we have in the United States for our territorial area, when compared with Europe, I have compiled the following table of statistics, gathered by the French Agricultural Bureau from the last census of each country:

INTERNATIONAL COMPARISONS.

Area and number of domestic animals in the United States and in Europe.

Territorial area in acres.	Countries.	Horses.	Asses and mules.	Cattle.	Sheep.	Swine.	Goats.
Acres. 1,921,492,480	United States	9,333,800	1,339,350	16,218,100	33,938,200	30,860,900	.....
79,352,000	Great Britain and Ireland	2,633,200	.....	10,144,500	33,977,900	3,561,544	.....
9,559,195	Denmark	316,570	.....	1,238,898	1,842,481	442,421	.....
79,583,000	Norway	149,167	.....	953,036	1,705,394	96,166	290,985
111,922,650	Sweden	438,090	.....	2,026,330	1,636,201	382,811	124,673
1,283,729,750	Russia	16,160,000	.....	22,770,000	46,432,000	9,800,000	1,700,000
94,463,250	Finland	254,820	.....	997,960	921,745	190,326	30,639
75,047,725	Austria	1,367,023	42,976	7,425,212	5,026,398	2,551,473	979,104
80,963,497	Hungary	2,158,819	33,746	5,279,193	15,076,997	4,443,279	572,951
10,354,500	Switzerland	105,792	.....	992,895	445,400	304,091	374,481
48,849,037	Germany	2,976,277	10,921	14,386,791	22,295,682	6,340,415	2,027,756
8,218,217	Holland	253,393	3,466	1,469,937	898,715	611,004	146,169
7,364,000	Belgium	283,163	11,849	1,242,445	586,097	632,301	197,138
132,262,435	France	2,742,708	705,943	11,721,459	25,035,114	5,755,656	1,794,837
22,771,750	Portugal	79,716	188,640	520,474	2,706,777	776,868	936,869
126,759,000	Spain	680,373	2,319,846	2,967,303	22,468,969	4,351,736	4,531,228
74,830,000	Italy	477,906	718,222	3,489,125	6,984,049	1,553,582	1,090,478
11,903,750	Greece	69,787	93,688	109,904	1,200,000	55,776	1,339,538
30,243,250	Roumania	426,859	6,734	1,842,786	4,786,317	836,944	194,188
	Total Europe	31,573,663	4,136,031	89,678,248	194,026,236	42,686,493	16,931,034

It will be observed that Europe, with an area of 3,777,690 square miles, possesses 379,-031,705 head of working and food-producing animals, while the United States, with an area of 3,002,332 square miles, has only 102,395,650.

The natural facilities for growing and raising stock, and the cost of feeding, are largely in our favor, and there is no doubt but that our country is suffering an immense loss annually for the want of stock to consume the produce of our land, and reduce the waste to a proper condition to be returned to the soil as a fertilizer. In Europe every species of offal is husbanded with rigid care, while with us it is an undeniable fact that the opposite is true. Our agricultural interests will not, indeed cannot, be fully developed until we imitate Europe in raising and feeding more live stock.

In the arrangement for competition at the exposition, it was so classified that foreign or imported stock competed with the French breeds only for the grand prizes offered by the Agricultural Society of France. Excepting two horses, there was no stock from America upon exhibition, but most of the European countries were represented.

There were three distinct exhibitions during the summer, the first of which comprised cattle, swine, sheep, poultry and rabbits, and was held from the 5th to the 18th of June. The entries were many in each class, France having much the larger number.

CATTLE.

In the cattle department there were 1,700 entries, nearly all of which were in the stalls.

Of this number, 1,314 were from France and 386 from other countries. It was, perhaps, the best selection of the bovine races ever gathered together, representing the beef, dairy and work cattle in various types and generally of superior quality. In so large a collection, as might be expected, there were a number of classes havng only a local reputation, and many crosses of the different breeds, which only show the result of an accident in nature, nothing determining what another cross of the same line of breeding might produce. Only the breeds that have established characteristics and value will be noticed in this report.

SHORTHORNS.

The most widely known and, by general consent, the favorite breed of the nineteenth century for all purposes is the Durham, better known as the improved Shorthorn race. This race of English cattle, which has been imported and is now the most numerous of any distinct breed in our country, about which so much has been written, and in which so much capital is invested, has so greatly increased the value of our stock that it would appear unnecessary here to say a word about them, further than that they were honored by being placed first on the list in the catalogue, and being a foreign breed, all in the class competed.

There were 118 entries, 41 of which were from the British Isles, and represented the most noted cattle breeders of that country, among whom were Her Majesty Qeeen Victoria, Lady Pigot, the Earl of Bective, George Fox, the Marquis of Exeter, Robert Bruce and John Kersley Fowler, of England, and Humphrey Smith and Benjamin Hannon, of Ireland.

As a lot, the British exhibit was a presentation of good specimens of the race, but did not, in my opinion, possess superior merits to the same breed of cattle often exhibited in our own country at our agricultural fairs. The only noticeable difference consisted in a heavier coat of hair, which no doubt results from the cool, moist climate.

The English exhibiters were disappointed in the result of their competition with the Shorthorns bred on the Continent, and claimed that the rules adopted by the government, which forbade their stock returning home without a quarantine of 14 days (to guard against importation of disease), prevented them from bringing their best animals, but it is not reasonable to suppose that the breeders named would risk their reputation by taking inferior specimens to such an exhibition. That they were fairly matched and really beaten by their own breed of stock, as bred by another people, was true, however unpleasant it may be to acknowledge the fact. It is evident that the time when English breeders of these fine cattle shall enjoy the revenue of a monopoly in breeding and exporting at fabulous figures is at an end. The United States can readily compete with them in numbers and quality, and at greatly reduced prices, and this exhibition shows that France and Western Europe are in the same condition. During the past half century France has made very great progress in developing her agricultural resources, and in no department have her efforts been more productive of good results than in the improvement of live stock. This has been aided and fostered by the government, through the Minister of Agriculture, in creating and maintaining breeding establishments in which imported foreign breeds have been tested and acclimated, and many native races thereby greatly improved. Thus, at the present time we find in France nearly all the improved races of English stock, as well as those of other neighboring countries, while she still possesses a number of well defined races of her own that are admirably adapted to the districts where raised, if not worthy of still wider recognition.

Shorthorns were first officially introduced into France in 1838. The French herd-book, of which eight volumes have been published, shows that 19,000 males and females have been used as breeders since that time, and it was generally conceded that those on exhibition were more uniform in type, more even in form and size than those of the English exhibit; but, in my opinion, it is inbreeding that has produced this result, and at the same time has reduced the average size of the animals of the breed.

French authors frankly acknowledge the superiority of the Shorthorn blood, and admit that no cattle are bred or have been imported into France that equal them in the great desiderata of early maturity and aptness to fatten in districts were there are rich pastures.

The increase and popularity of the breed for beef-producing purposes in the country wonderful. One enthusiastic writer asserts that the Shorthorns and their crosses are i dispensable to the beef-producing interests of France. Some very superior cross-br Shorthorns were on exhibition, to show how well they crossed with different breeds, a the same results were apparent there as are found in every instance, viz: the improv ment of the breed with which the Shorthorn was mated.

HEREFORD CATTLE.

Next in order in English breeds was the Hereford, which was represented by only t animals, a three-year-old bull, exhibited by Her Majesty Queen Victoria, and a yearli heifer, by J. Hewer, of Hereford, England. The Hereford is supposed to be an aborigi race, indigenous to the county in England from which it takes its name. In the ear part of the present century these cattle carried off more premiums at the great fat sto shows than any other breed, but for many years they seem to have been giving way in th contests, to the more favored Shorthorn. Originally they were of diversified colors; th by breeding were transformed to white face and body of red and white, which has been ag modified until it has reached the present standard, which is white face, throat, che udder, dewlap, lower part of the body and legs, and tip of tail, other parts being a brow red. The hair has a tendency to curl. The two animals on exhibition were superior quality, and much resembled the Shorthorn in form. This breed of cattle, if ever impor into France, failed to give satisfaction, as there is no mention made of them by writers any traces of the animal; yet they are not without friends in their own country or in our where they have been on long trial, and are noted for their placid disposition and exce lent grazing and feeding qualities.

DEVONS.

The Devon is one of the oldest breeds in England, and is a great favorite in the coun from which it derives its name and in the counties adjoining. It is a middle-horned bre having an excellent constitution, great aptitude to fatten, and its meat is first class. T milk is rich, and as working cattle they are much liked, owing to their sprightly ste The color is a pure dark red, the hair silky, and the skin a mellow quality.

LONGHORNS.

The Longhorn belongs to the midland counties of England. The horns curve forward and downward, so as sometimes to touch the cheek. The coat is good and the back straight; the color various—dark-red, brindled, pied, with a white streak along the spine. The breed has sunk in estimation on account of the superiority of the Durham, which may be called the fashionable breed, and certainly deserves the lead, from its intrinsic and numerous good qualities.

SUSSEX CATTLE.

The Sussex cattle are noted for working qualities, but, as with us, they are largely superseded by horses. They are a deep red, but have larger horns, heads, and bones than the Devon.

WEST HIGHLANDS.

The West Highland, or Kyloes, of Scotland, might be suitable cattle for the mountainous districts of our country, but, yielding all the good qualities claimed for them, their rough appearance will forever keep them from being favorites with our people, and the same might be said of the small Welsh cattle. The Highlanders, however, have excellent grazing qualities, and their meat is of the very finest order. The color varies.

POLLED CATTLE.

The polled Suffolk, Galloway, and Angus or Aberdeen cattle, form another class.

SUFFOLK CATTLE.

The Suffolks have an early history in the county from which they take their name. They not only possess excellent dairy qualities, but they are a very heavy-bodied cattle, with smooth forms and deep flesh. They are noted for their hardy constitution and docile disposition. A thick, mellow hide, well covered with fine, red hair, enables them to endure a low temperature. In the northern portions of our country, where the winters are severe, this breed of cattle would be a valuable addition to our stock. The beef is excellent. They are now being bred to red color, with certain white markings.

GALLOWAY.

The Galloways do not differ much in size from the Suffolk. They are not so smooth in form; have larger bone: long, coarse hair; hide hard to the touch. The whole appearance of the animal indicates a slow feeder. The color is jet black; the constitution hardy, adapted to the cold, moist climate of Scotland. They are not adapted to dairy purposes.

ANGUS, OR ABERDEEN.

The Angus, or Aberdeen, is a name of more recent date given to a race of cattle supposed to have descended from what were formerly termed "Angus Doddies," or Aberdeen Hummlies. These cattle are what may be termed a new breed, produced by careful selecting and breeding to obtain a definite result.

As all breeds or different forms in the same race of our domestic animals are the result of the natural surroundings, and care in mating and keeping them, it follows as a natural sequence that the field for progress in that direction is still open, and it is no real cause for surprise that a group of six animals of this new breed should carry off the highest honors of the exhibition; nor does it establish the fact of the superiority of the breed, in a general sense. There were but 15 entries—and every animal was a good one, but there was no evidence of the number from which they were selected, or how great was the percentage rejected as inferior. Yet it is plain that if the same system which produced this lot is adhered to, in time the standard can be perfectly established in the breed.

This is not an accidental success, but for a number of years they have been attracting notice at the different exhibitions in their own country. On this occasion, the grand prize of honor for foreign cattle was given to the group owned by William McCombie Tillyfour, Aberdeen, Scotland. The Agricultural Society of France offered a prize of 2,500 fr. for the best group of beef-producing cattle in the whole Exposition, all the members of the different juries acting together in making the award. That prize was also given to the same group of cattle. It was evident that they had long been in preparation for the occasion, by their high condition of flesh and the care with which they had been prepared. Their color, like the Galloway, is black, but the form is blocky, like the Shorthorn. The hair is soft and fine, the hide thick and mellow; the bones, in proportion to the size of the animal, are small; the joints smooth, and the flesh well laid on in the most valuable portions of the carcass; the shoulders are smooth, the crops and loins wide and deep, the quarters long and full. The owner claimed for them a very docile disposition, early maturity, and aptness to fatten, but not up to the average in dairy qualities,—and further, that a cross between them and the Shorthorn very much improved their grazing qualities.

AYRSHIRE.

There were only seven entries of the Ayrshires from England and Scotland. They were fine specimens of that excellent race of dairy cattle, but did not show superior quality over those that have been imported into the United States.

The Ayrshires are a rather small breed, the color frequently red, or brown and white in large patches, or all red and brown, or sometimes black and white. The horns are fine, curve upward, and are placed wide apart at their bases. The neck is straight from the head toward the top of the shoulders, which are very thin on top. The back is straight; the body is wider and deeper as it approaches the hind quarters. The bone is small, legs short, the eye mild, the udder very large, and the disposition docile.

JERSEYS AND GUERNSEYS.

These cattle, long known under the general name of *Alderneys*, are probably the descendants of Norman or Breton cattle, but have attained a type of their own, with two varieties now distinguished.

The Jersey cow is essentially a dairy animal, and is remarkable for the neatness of its form, slender frame, deer-like head, gentleness, and richness of milk. The symmetry which the Jersey cow should possess is determined by a scale of points which has been drawn up by the Royal Jersey Agricultural Society. The milking qualities take the greatest number of points.

The Guernsey cow is longer, coarser, and almost uniformly red and white. It is a better meat animal, and inferior to the Jersey for the dairy. The muzzle, the skin around the eyes, and the tips of the horns are yellow or brownish in the Guernsey, black in the Jersey.

The breeds have many points of resemblance, and some individuals of each may be easily confounded.

The breeds had but few representatives in Paris. The best specimen was bred in Ireland.

KERRY.

The little Kerry cattle of Ireland were the Lilliputian race of the show. A neatly formed head, upturned horns, lively and expressive eyes, and a body but little more than three feet high, if not very smooth and round, made them attractive. The Kerry is sometimes called the "poor man's cow," from its moderate size, hardiness, good milking qualities, and docility. There were 14 Kerry cattle in the stalls, all black.

HOLLANDAISE, OR HOLSTEIN.

Hollandaise is the name under which the Dutch cattle were exhibited, but they are imported into this country under the traditional name of Holstein, derived from the idea that centuries ago they came from Schleswig-Holstein. There is no proof of such being the case, and they have a long history connected with them in Northern Holland. The earliest history of the Shorthorns induces the belief that the Hollandaise cattle were taken to England and became the progenitors of that famous English breed.

The exhibition of the Hollandaise race was very fine, there being 53 head in the stalls. These cattle, in natural formation, are not smooth animals, but when well kept carry sufficient flesh to give a general form not unpleasant to the eye; such was the case with those on exhibition. The established type of the breed is above the medium height; legs long, body large and coarse, projecting haunches and drooping rump; head rather long and narrow, short horns, neck thin; ribs long, flanks light, and remarkably fine udder and escutcheon. The hair is very fine, the hide soft, and the color usually black and white, though sometimes all black or white.

It is admitted that they are large consumers of food, but it is also claimed that they fatten readily when off their milk. They are great milkers. It is not an unusual case for these cows to give from thirty to thirty-five quarts of milk a day, from which is made the celebrated Dutch cheese, known the world over. The skeleton-like appearance of these cattle—some of which have been imported into this country—tends in a great degree to bar their general introduction. For this gaunt appearance their owners are mainly responsible, by depriving them of food. These cattle can be made attractive to the eye, as well as profitable to the owner, by proper feed and care.

THE SWITZ RACE.

The Swiss cattle are mostly of a dark brown color on the body, with a light mouse-colored stripe on the upper line. They are generally above the medium size, with square and compact bodies, heads large and coarse, thick necks, with heavy, hanging dewlaps. With the improvement of agriculture in Switzerland—which has been very great in recent years—the improvement of stock has kept pace. Many of the objectionable points in the cattle have been bred out of them by selection. They still retain their claim as a superior race for the dairy, and furnish one of the greatest sources of revenue to the country. The ox, and very often the cow, is used for doing the work on the farm. They receive the kindest treatment from their owners, and, in consequence, they are unusually docile in disposition. From the practice of wearing bells, it is said they evince a love for music,—giving rise to the country-saying that a dairymaid with a fine musical voice will increase the quantity of milk yielded by the cows in the dairy. Most of the cattle in the stalls had premium bells hanging by them, the trophies won in local competition at home fairs. These bells are of the finest metal and weigh from 15 to 20 pounds each. These cattle have fine and muscular limbs, with feet apparently as hard as iron, and well adapted to the steep, stony regions of their native country. Their milk, though not so great in quantity, is like that of the Channel Island cattle, very rich in cheese and butter qualities. The Swiss cheese is among the finest made in Europe, and finds a ready export sale. Combining these excellent qualities with that of great hardiness and a fair beef-producing structure, they would unquestionably be a valuable cattle in the mountainous districts of our country, especially where but little grain food is grown.

FLEMISH CATTLE.

The Flemish cattle have, without doubt, a common origin with the Hollandaise and other races that are found on the coast of the North Sea. Although this race in the past has often been crossed with the Holland race, the Flemish of to-day has little or none of the large and strong characteristics of that race. Lately they have been bred exclusively for the purpose of developing the milking qualities, at the sacrifice of beef. They are mostly of a very dark-red color, thin in flesh, high on legs, slender and angular in form, very flat sides and drooping haunches. With all these apparent defects, they evidently possess the power of transforming the products of the soil they feed on into milk of superior quality. They are kept on the soiling plan, and are not allowed to go to pasture. By this principle a greater number can be kept, and more manure gathered to return to the land. Only the choicest males are kept for use as breeders, the remainder slaughtered when young. By thus selecting for a specific type, there was a very strong family resemblance among the 85 animals on exhibition. The appearance of these cattle did not compare favorably with other milking breeds on exhibition, and I commend the race with no expectation of it being favorably received in our country. Yet the jury awarded to a group of them the grand prize of 2,500 fr. offered by the Agricultural Society of France for the best group of milking cattle at the Exposition. I was assured by other visitors that I was not alone in the opinion that the prize was incorrectly placed.

DANISH CATTLE.

The Danish cattle exhibited were of a deep-red color, of medium size, and the only particular value claimed for them was milking qualities. They were in such an extremely low condition of flesh that they were unfit for exhibition. No matter how superior they may be for the specific purpose for which exhibited, they were more the objects of pity to the eye of the visitor than credit to the country or people that placed them on exhibition. It seems a difficult task to convince people that a living skeleton can be neither profitable nor creditable to the owner under any circumstances.

ITALIAN CATTLE.

Northern Italy exhibited only working cattle. They are tall, coarse in bone, of unsightly appearance, and their form bespoke a life of privation, toil, and exposure which has been their lot for generations, until the last ray of intelligence and ambition seems obliterated.

FRENCH BREEDS OF CATTLE.

The cattle of France are very much diversified in races or breeds, which have each a local origin, and must have long been bred in this manner to establish such distinct types. There does not appear to be any traffic in live stock between the different parts of the country; no mingling or exchanging, as with us. The agriculturists or peasantry of France (I might say Continental Europe) are not a traveling people, and are uninformed as to what is taking place outside of their immediate vicinity. If it were not for the plan adopted by government of encouraging the improvement of stock, very little enterprise outside of each narrow and restricted circle would be exercised. Thus, we find in the

French division of the catalogue what they call 17 different races of cattle, named after as many different provinces or localities. A number of them have the form of what might be termed distinct breeds, while others vary but little except in name. One peculiarity of these cattle is the almost wonderful exactness of color and form established in each different race, which can only be produced by a long line of breeding and selecting for that purpose; but there is no history, no herd-book of any of them, to show how long it has taken to do this. I shall only notice the most defined and noted of these breeds, stating the objects for which they have been produced.

NORMANDY CATTLE.

The most noted dairy breed of France is the Normandy race, which prevails in the departments of Manche and Calvados, in Normandy. In former times this breed was valued for its yield of milk, but the animals being large and coarse, consumed a large amount of food in proportion to the product. Since the introduction of the Shorthorns into that country they have been crossed with that breed, which has greatly improved their form and aptness to fatten, without injuring the milking qualities of the race. Hence, we find the Norman, as exhibited, a large and tolerably well-rounded animal. The original color remains unchanged by the introduction of the new blood.

There were 150 animals of this breed on exhibition, and every one of them was of a beautiful mixed-brindle color, which, together with their large forms and fine condition of flesh, made them, as a lot, a very attractive sight to the lover of good stock. The prominent points of the breed are, head short, face broad, eyes full but small, expression mild, horns wax color, and as the animal advances in age they are quite long and circle upward; body long, haunches wide and rump straight, tail light and long, thighs thin and wide apart, giving room for a large and finely formed udder and teats.

The Normans compare favorably with the Holsteins for the dairy, and are more regular in form and pleasing to the eye. They fully equal them in hardiness of constitution. Their color is more acceptable to our tastes, and, upon the whole, I believe they would give good satisfaction to our people were they imported into this country. With the improvement of the Shorthorn cross they are certainly a better animal to fatten, and would give better returns in beef when no longer serviceable in the dairy.

BRETON RACE.

These animals constitute a small race found in the western part of France, the history of which may almost be termed ancient. They may truly be called the poor man's cow, from their ability to subsist on a small amount of poor food, and yet give a larger amount of milk than almost any other race under similar keep. To those farmers and stock-growers in our own country who believe and advocate low feeding to produce superior stock, and are always pointing to the great danger from overfeeding, this race of cattle can be highly recommended. In them they will find a race trained for centuries in consonance with these ideas of keeping. They are of a similar form to the Channel Island cattle, but larger. They are generally of a black and white color, with short and broad heads, horns white at the base, tipped with black, muzzles black, eyes very black and docile in expression. The body is muscular, bony, and rough; limbs fine, feet small. With the improvement of agriculture in their country, the better breeds of cattle are being introduced and crossed on them, and it will not be long until the race in its purity will exist only in history. The cross of the Shorthorns seems to give the best satisfaction, by increasing the size and feeding qualities, but they require better feed and care, as they do not retain the self-sustaining powers as well as the original breed.

CHAROLAISE RACE.

This race of cattle is one of the most ancient, finest, and best known in France. Their milk-white color and similarity of form is really a natural wonder. Of all the breeds I have ever examined none ever impressed me with such a distinctive similarity as did these. They take their name from Charolles, in the department of Saône, and have a well-authenticated history since 1789. Since that time they have spread through a considerable portion of the country, and great care is taken to keep the breed pure. The Shorthorns have been crossed on them with varied results, always increasing their milking qualities and aptness to fatten when on good food, but injuring the quality of the oxen for work and the value of the animal for grazing on the pastures of the country. For the purpose of testing this cross, the first Shorthorn bulls were imported into France by Brière d'Azy in 1825.

That importation was made under the most favorable circumstances, as a skillful English herdsman accompanied these animals, and continued in charge of them. Although not conceded by the breeders of this race of cattle *now*, yet from the great similarity between them and the Shorthorns it is evident that the cross made at that time was the foundation of the present form of the race, which may thus be described: A short and broad head; wide, rosy muzzle; squarely formed mouth; eyes large and prominent; forehead broad, with an expression of kindness and patience on the countenance; horns short and wax-colored, standing well forward; neck fine at the head and arching to the body on the top, and filling out well on the sides to the shoulder points. The shoulders are slanting and smooth; crops well filled; forerib long and rounded, giving abundance of room for heart and lungs. The back is broad and straight; loins level and wide; the quarter smooth and very round. The twist is full, but not let down as far as it should be. The lower limbs are fine and muscular, and the hoofs hard and well suited for traveling. This is pre-eminently the beef breed of France. The quality, however, does not rank as high as some other, as the meat is said to lack juciness. The hair is fine and hide hard. They are highly valued as work cattle, possessing great strength and endurance, and surpassing the aver-

age ox in speed. At maturity the ox often weighs 2,500 or 3,000 pounds. I saw them at work with the deep subsoil plows, at the trial of these implements, and their power of draft exceeded the heavy draft-horse and the speed was fully equal to his.

The 65 animals on exhibition, though of different ages and sizes, were all a pure white, and all of the same symmetrical form, which considerations made them the most attractive lot of cattle on exhibition, and as a mark of excellence the jury awarded them the grand prize of honor as the best for general use among the native races. Although their color (white) and inferiority as dairy animals would be against them in this country, their meat producing, as well as early maturing, qualities would commend them to favorable consideration.

LIMOUSINE RACE.

This race of cattle is of a fine form, above the average size, and uniformly of a dark-red color. They have a very intelligent-looking head, a smooth and regularly formed body. Those on exhibition, 70 in number, were all of the same type, and, if fair representatives of the race, were, like other breeds mentioned, a curiosity to see.

To the observer it would seem that in all the French races selected for exhibition, the individuals in a group bore a striking similarity in form and color. The cattle of no other country represented showed so much evenness in these respects. It is doubtful, however, whether in their native districts this marked uniformity would be so prominent.

This race has a form calculated to furnish a large percentage of excellent beef, but their greatest claim to distinction is that of work cattle, and the least that of dairy qualities. Both sexes are taught to work when young, and cattle are the only animals of labor used in their part of the country. It is admitted that they do not possess the great strength of the Charolaise, but they are more tractable and docile, enduring greater fatigue and subsisting on a less amount as well as a coarser quality of food.

To a group of this race was awarded the grand prize of 2,500 fr. offered by the Agricultural Society of France for the best cattle for labor.

GARONNAISE RACE.

The Garonnaise is a widely distributed race. The cattle have fine forms, are all of a light-red color, and occupy the valley of Garonne River for more than 500 miles between Toulouse and Bordeaux.

BAZADAISE CATTLE.

Bazadaise are low, heavy-bodied cattle, similar in many respects to the Swiss, being of the same color—dark-gray or brown—and their appearance indicates great hardiness of constitution.

PARTHENAISE RACE.

The Parthenaise race is found in Vendée. They are mixed in color, being red and gray, and are claimed to be superior milkers, but are by no means attractive in appearance.

SALERS RACE.

The Salers, a numerous race, possesses many good qualities. They are of a deep-red color, somewhat resembling the English Devons, though larger and not so smooth in form. Their uniformity in color shows a long line of breeding.

I might continue on through a list of French cattle exhibited, and notice the different points of the races, but having described what they consider their best breeds for beef, the dairy, and labor, the others would differ only in minor types, each claiming, and no doubt possessing, real value for the purpose for which it is bred. All the races show that the French people for a long time have given great attention to the improvement of horned stock, and the cattle on exhibition and those seen in different parts of the country attest that the masses of their cattle are better than ours, receive more kind treatment, better care, and better feed. The same rigid system of economy that is practiced in the cultivation of the soil is applied to the growing and keeping of their stock. One animal bred for the purpose needed, and well cared for, is more profitable than two accidentally bred and half fed can be.

There never have been so many distinct races of the bovine species, or so many superior animals of the races assembled together, as at this exhibition. This is no doubt due to the fact that more effort has been given to the improvement of the species lately than ever before, and that the wide classification adopted and the liberal premiums offered on this occasion, brought out a more general exhibit than any former exhibition.

In the cattle department 130 cash prizes were offered for foreign cattle; the sum total of these prizes was 66,100 fr. For native French cattle 363 cash prizes, amounting to 146,835 fr., and three grand prizes of 2,500 fr. each, making a total of 220,435 fr., or over $42,000. All the prizes in their group were taken in the native races, and nearly all offered in the foreign group.

SHEEP.

The show of sheep was very good, but while many specimens of the best races and varieties were exhibited, there were many others of mere local interest, and neither fine in appearance nor quality. Of the 825 entries there were—

Foreign exhibits:	
Foreign Merinos	13
British breeds	187
Low countries	13
Other foreign breeds	29
French exhibits:	
French Merinos and *Metis-Merinos*	269
Native long wools	34
Native medium wool	20
Native mountain sheep	48
Race Charmois	24
French-bred Dishleys (Leicester)	49
French-bred Southdowns	42
Crosses and grades	97
Total	825

MERINOS.

The Merinos had the place of honor in the French catalogue. All the foreign entries of this race were from Italy, and the Merino and *Metis-Merino* included more than one-third of the whole number of sheep exhibited.

The French Merino, of which there are great numbers, originally came from Spain. They are small in size, of a rather delicate form, with very fine fiber in the fleece. What is termed the American Merino, in our country, is a larger and stronger sheep, derived from the original Spanish stock, and possesses all the merits of the French breed, and the same may be said of that breed exhibited from Northern Italy. Of the native breeds of France but little can be said in their favor. They are mostly local in reputation, and have inferior forms when compared with the new or improved breeds, and it is evident that they are fast giving way before improvement by crossing.

It does not appear that the sheep-raisers adhere to the same rule as the cattle-breeders to improve the race without losing the original family type; neither have they adopted any of the pure English races as a standard to suit their wants. On the contrary, they have united, by crossing, foreign and native breeds, and built up new ones.

The long-wool sheep of the northern departments are known as Astésienne, Normande, Picarde and Flamande, named after the old provinces, yet they are the outgrowth of the old Flemish race, modified by a continued use, for thirty or forty years, of English rams of the New Kent race. But the greatest success is to be found in the fine-wool crosses. By crossing the Spanish Merino with these cross-bred natives, they have produced what is now known as the *Metis-Merino*, a sheep that seems destined to become the most valuable in France.

They have thus succeeded in retaining the fineness of the Merino wool, as well as increasing the size of the carcass to that of a finely formed mutton sheep, shearing from 12 to 20 lbs of wool.

The staple of the best of the *Metis-Merinos* is from 4 to 6 inches in length, and comparatively free from the oily substance in the wool of the Spanish Merino, thus securing a much greater percentage of clean wool. The neck is free from the wrinkles of the Merino, the head and face well covered with wool, and the limbs wooled down to the feet. They also retain the aptness of the Merino for thriving well in large flocks, and seem well able to withstand exposure to bad weather. So thoroughly have they combined the good qualities of the pure Merino that they were classed together in the same catalogue, competed for the same prizes, and won a good share of them. The grand prize of 1,500 fr. given by the Agricultural Society of France for the best pen of native bred mutton sheep was awarded to a branch of this breed known as the Dishley Merino. The name "Dishley," indicates crossing with the Leicesters; the French catalogue indeed speaks of the "New Kent" as a modification of the Kentish or Romney Marsh sheep crossed by the Dishley (Leicester).

The value of a breed of sheep that unites good mutton qualities and fineness of wool is apparent to all, and as this seems, in a great measure, to have been attained in the *Metis-Merino* by the French breeders, the breed would be a valuable addition to the sheep interests of our country. If this exposition proves sufficient to attract the sheep-growers of our country to the value of these animals, and cause them to import a number, I doubt not but their value would soon be appreciated, and our fine wool product be much increased.

THE SHEEP OF THE ENGLISH DOWNS.

SOUTHDOWNS.

England had 39 entries of Southdown sheep, and France 42 of the same breed. It takes precedence in its class of sheep by right of priority and continued care. The Southdowns of England are in Sussex, the native home of the sheep, 17 of the 39 entries being from that county.

The Southdowns exhibited by Lord Walsingham, of Merton Hall, Norfolk, showed their excellence and maintained the high honor heretofore won as a mutton sheep, by winning the grand prize of 1,500 fr. offered by the Agricultural Society of France for the best pen of foreign sheep for the butcher; also the grand prize of honor for best pen of sheep of foreign races.

The symmetry of the Southdown sheep is proverbial. The bone is small, the body thick and cylindrical, the ears wide apart. The ears and forehead are well covered with wool, which forms a protection from the fly. The eye is full, bright, and quick; the chest wide, deep and projecting; the back flat to the tail, which is set on high; the hind legs are full on the insides and wide apart.

The wool is short, close, curly, and fine, of excellent quality; it is the shortest staple wool of Great Britain.

The mutton is of the finest quality, excepting some mountain breeds, such as the Dartmoor, the Welsh mountain sheep, and the Black-faced mountain sheep of Scotland, which feed on aromatic herbs and young shoots of heath, giving a venison taste to the meat.

The other Down sheep of England were classed together in the third category of the French catalogue, viz: the Shropshire, Hampshire, and Oxfordshiredown. There were 41 foreign entries, all from England, excepting 4, which were from Belgium.

SHROPSHIREDOWNS.

The Shropshiredown is the favorite breed in the midland counties of England, and from the dark face and legs are often thought to be allied to the Southdown. They are, however, a larger sheep, and yield a heavier fleece and of a finer staple than that breed. They are also much prized for mutton.

The Southdowns thrive best on hilly land, while the Shropshiredown does well on low or flat land, which ought to recommend this breed as suitable for the prairies of our Western States. They are hardy, apt to fatten, prolific, and are good mothers.

HAMPSHIREDOWNS.

These sheep occupy the rolling downs on the chalk formation of Hampshire and Wiltshire. They are larger and stouter than the Southdowns, which otherwise they very much resemble. They have attained stable breed characteristics, the result of careful crossing the Southdown upon the old Wiltshire sheep, and are now a favorite breed in six counties of England.

The fleece is of average weight and quality, of middle staple, but inferior to the Southdown.

They are prolific, hardy, and good mothers.

OXFORDDOWN, OR OXFORDSHIRE.

This is still a coarser grade of wool and larger breed. It possesses the characteristics of a combination of the Cotswolds and the sheep of the Hampshire and Sussexdowns, from an admixture of which breeds they are doubtless derived, but by a uniformity of type having been adhered to, they have now become a recognized breed.

They succeed in England on mixed soils and feed on the green crops of arable land better than on sheep runs. They are prolific, are good mothers, and come early to maturity. They are dark in color, poll covered with wool, top-knot on the forehead, legs black.

The fleece is thick; rather long staple, and coarse.

LONG-WOOL AND MUTTON BREEDS.

In the long-wool and mutton breeds the English breeders excelled all others, and as a lot their sheep had undoubted superiority over those of other nations.

LEICESTER.

The Leicesters are of the *Dishley* stock, and are generally known in France under the latter title, the name of the residence of Mr. Bakewell, the great improver of English stock, both cattle and sheep. The Dishley Southdowns are the only English breeds which seem to find favor in France. Of the French-bred Dishley, there were 49 entries, and of the Southdown 39 entries; also 3 Shropshiredown. Of the cross breeds, there were 56 entries of Dishley crosses and 13 Southdown crosses. These were interbred with numerous native French races—Normande, Artésienne, Berrichone, Cauchoise, Mauchamp, Lauraguaise. In fact, of the 97 cross-bred entries there were but 28 in which the Dishley or Southdown were not mingled, and of these 14 were crossed with Merinos; and 7 were Algerian sheep, origin not stated; the remaining 7 being crosses of French native breeds on both sides.

The Leicester breed is widely known in the United States, but it is easier to raise choice specimens and little bunches of sheep than it is to succeed with them in flocks. They succeed on land where they can be well fed, and are adapted to highly-cultivated soils, but not to ranging.

They are more symmetrical but not so large as the Lincolns, are early to mature, a most valuable mutton sheep, with a great facility for laying on fat when they are pampered. The bone is fine.

The fleece is classed in England as moderately long, though it strikes the ordinary observer in the United States as very long, as it is frequently penned near the Merinos and

Southdowns, at our fairs. The wool is a combing wool, is bright, coarse, and adapted for lusters, serges and carpets.

The shape of the animal is admirable, the back being broad and straight and the chest deep and wide. The head and ears are apt to be hairy. The ears are long and thin; the eyes prominent. No sheep has been so largely used for improving other breeds.

There were 29 entries of English Leicesters, besides the 49 French-bred animals of the same breed previously referred to; also 5 entries of the New Kent, the sheep of the Romney Marsh improved by admixture of the Leicester, and which contributed to the present *Metis-Merino* stock, the most prominent bred at the present time in France, as previously referred to.

LINCOLNS.

The Lincolns produce a heavier fleece than either the Leicesters or Cotswolds. They are hardy, succeed well on wet soils, which are so common in their native country.

Like the Cotswolds, they are very large. Some specimens of these breeds at the Exposition weighed ouer 400 pounds each.

The Lincolns have good symmetry, and are early to mature, having much similarity to the Leicesters of the adjoining county.

The wool is long, bright and coarse.

There were 26 foreign entries of Lincolns in the show on the Esplanade.

COTSWOLDS.

This is a native West of England breed of ancient celebrity. They are abundant in three counties of England, embracing land of superior quality.

The sheep are hardy, mature early, and have very large frames, the back of fat sheep being surprisingly wide and flat, and the rump overhanging. The chest is prominent and wide.

The fleece is heavy; the wool very curly, long, white and lustrous.

There were 21 foreign entries of Cotswolds in Paris.

It would not be profitable to speak at length of some other breeds of English, French, Hollandaise and Swiss sheep.

Britain had 10 entries of Chevoits and 10 of Exmoor and Mountain; Scotland and Ireland, 12 entries of Blackfaced; Ireland, 7 of Roscommon—the latter the only Irish breed represented.

The Texel and Polder sheep had 14 entries.

The long-wooled French races—Artésienne, Normande, Picarde, Cauchoise, Poitevine, Comtoise, Boulonnaise, Bretonne—had 34 entries.

The French middle-wool races—Sologuot, Languedocienne, Crevant, Berrichonne, Champenoise—had 20 entries.

The French mountain sheep, of 12 stated races, not needful to enumerate, had 48 entries.

The Charmoise race, which is a cross between the New Kent and the native Berrichonne, has attained some celebrity since 1840. It is remarkable for early maturity and facility in fattening. It is of medium size, hornless, fine-boned, wide loins, wide and deep chest. There were 24 entries.

The Swiss, Spanish, Algerine, Italian, Savoyard and Belgian sheep were but few in number.

The raising of sheep is much more general among agriculturists in Europe than in the United States. They outnumber us in animals more than five to one,—and this in the face of the fact, before mentioned, that in the United States the facilities for growing and feeding them are greater than in France.

In this department at the exhibition the prizes offered were large, attracting general attention. No doubt it was so arranged for the purpose of stimulating greater improvement.

To foreign-bred animals there were offered 100 cash prizes, the total value of which was 32,450 fr.; to native races and cross breeds, 90 prizes, amounting to 24,350 fr., the value of all being over $11,000.

No sheep were exhibited from America.

SWINE.

The exhibition in this class of stock was not equal in quantity or quality to what may be seen annually at the leading fairs in the United States. True, the English breeders were there with choice specimens of Berkshire, Yorkshire, Lincolnshires, Middlesex, Sussex and Suffolk breeds,—but we have them all in our own country, in as well-developed forms, in every particular, as they. No citizen of the United States, who is familiar with this class of stock at home, need longer turn to Europe with the expectation of finding it in more perfect form. It is also true that from England we have brought most of our improved breeds, and have thus secured the benefit of a long series of years' experience by the breeders there.

In the southern countries of Europe there has long existed a black and almost hairless breed, known by the name of Neapolitan, which is of small size, with a round, smooth body, and very prolific. This race was taken to England and crossed with the coarse native hog, and produced the Berkshire and other dark-colored breeds; yet it is said that none of the breeds thus formed equals in fineness the flesh of the original race.

The little white Chinese race, with legs not over a finger's length, a handsome little head, with ears about the size of an apple leaf, standing erect like a squirrel's, and not weighing over 100 pounds at maturity, was taken to England as the basis of their white races.

In Normany, France, they have a large race, the body of which is long and thin, heavy, hanging ears, and a long and well-tapered snout. The only good qualification I could discover in the race is their adaptability to subsoiling.

In the Limousine they have a very good race of swine. In form they are of medium size, have small, erect ears, fine limbs, and stand well on their feet. They are peculiarly marked in color—white in the middle portion of the body, black fore and aft.

In France, and in fact throughout the continent generally, there appears to have been little attention given to the improvement of the swine, until recently: consequently, we find them but little in advance of the wild hog, which is to be seen plentifully in the shambles of Paris, appearing as game, along with the venison.

The people of France have recently imported many of the improved English breeds, and much interest is now manifested in the improvement of the swine by crossing. A number of pens of these crosses, in the French section, showed great success, as also a fine lot of English breeds, purely bred and of much excellence.

The prize of honor for native-bred swine, and the grand prize of 1,000 fr. offered by the Agriculturul Society of France for the best pen of hogs for the butcher, were given to a lot of the Middlesex breed, bred and exhibited by the French breeder M. Poisson.

The prize of honor for foreign breeds was awarded to G. M. Sexton, of Ipswich, Suffolk, England, on a pen of Suffolks.

In making the awards the juries seemed to favor the white hog in preference to the black.

With us, cattle and hogs seem to sustain the relation of immense manufactories, transforming a large portion of the vast corn crops of the Western States into a more concentrated form of human food for the markets of the world, and the natural adaptation of both to our soil and climate does and will enable us to produce the result at a much less cost than in Europe, and our exports in that direction in future years must be largely increased.

Hence it follows, that the more we improve our stock and definitely fix the forms and breeds that will produce the best returns for the amount consumed, in the shortest space of time, the greater will be our profit on the investment. That we have made rapid strides in this direction, of late years, our foreign trade abundantly proves. However, there is still much to be done in this direction before the greatest possible avails of this industry shall be realized.

POULTRY.

CHICKENS.

The exhibition of poultry was very full in varieties, and collectively very fine.

Of chickens there were 1,461 entries. I did not notice any species that are not raised in this country, and those that are highly prized here were most numerous at the Exposition.

There were, of Crèvecœr, 165 entries; Houdans, 158; La Flèche, 124; Gray Dorkings, 87; Spangled Hamburgs, 85; Brahma-Pootras, 95; Buff Cochins, 91; White Cochins, 39; Black Cochins, 35; Black Spanish, 48, and of the game varieties, 77, besides many others of less celebrity.

There were a great many cross-bred fowls, but they are not well enough defined to be classed as distinct breeds. The growing of poultry receives great attention throughout France, and with the French, more than any other people, it is often made a specific occupation, and one of much profit.

In this class of stock, where the rules of judging perfection in the varieties are often decided by the color or shape of a particular feather, I will not venture an opinion, further than that the standard of excellence in each class was more generally approached than is often done at such expositions.

TURKEYS.

There were 91 entries of turkeys. They were of varied colors and forms; but the most attractive group was that exhibited by Miss King, of King's county, Ireland, which consisted of eight very large and finely colored bronze turkeys, bred from stock exported from the United States.

The other varieties were nearly all black or white, and of less size.

GEESE.

Of geese there were 50 entries, which were nearly all of the large Gray Toulouse—now common in our own country.

DUCKS.

There was a fine exhibition of ducks, being 137 entries, which included Aylesbury, Rouen and Labrador species. They were all of large size, and perfect types of the different breeds.

PIGEONS.

There were 516 pairs of pigeons, of which 128 pairs were of the carrier species, the others being of various breeds and colors, and mostly of large size.

RABBITS.

Three hundred and ninety-four rabbits, mostly of the long-eared species, were comprised in this exhibition.

DOGS.

The exhibition of the canine species was held in the stalls of the cattle-sheds during the first week in July. I am at a loss what to say of this class of animals to the people of our country—a country where the dog is scarcely recognized as property—where not even a right to life is guaranteed to him, and where he is usually treated as a scavenger, a thief and a sheep-murderer.

A very different estimate is formed of him by the people of Europe. In the rural districts dogs are almost everywhere used in tending sheep. It is not an uncommon sight to see an old man or woman, who, from age and feebleness of body, is no longer able to obtain a livelihood by hard labor, accompanying a flock with an intelligent shepherd-dog to keep them from trespassing, and to take them to and from the fold or the pasture. The absence of fences, the pasture strips lying alongside of growing crops of grain, etc., renders this species of care imperative. The use of sporting and hunting dogs is also more common than in most parts of the United States. In some countries the use of powerful and well-trained dogs is necessary as a protection against wolves, and against foxes in the lambing season.

At this exhibition there were nearly 800 specimens of the canine race brought together, comprising almost every variety that is to be found in the different parts of the world, thus presenting a great many different types, forms and colors of the animal.

The Mastiff was represented by 14 entries, all owned in England and France. They were of various colors—large and powerful animals, unsocial, brave and faithful.

Of the Bull-dog there were 30 animals exhibited.

The Newfoundland dog was not represented at the exposition, but a species was exhibited from the southwestern coast of France closely resembling him in size, form and color.

The St. Bernard was represented by six animals—three bred in France, two in England and one in Switzerland. The English-bred ones were apparently larger, had long, shaggy hair, with a very bushy tail, while the French and Swiss representatives were of smooth coat. All were large and powerful animals, with kind dispositions.

There were many of the Terrier species. Of the British breeds, the Skye Terrier is the most valuable. He is of small size, with long, fine hair, piercing black eyes, and very active.

One specimen, exhibited by the Prince of Wales, was covered with steel-gray hair, from 6 to 8 inches long, over his entire body. This animal seemed to be the highest type of the breed, from the fact that it was awarded a gold medal.

The English Terrier is a small animal, with short and smooth hair, usually of a black-and-tan color, and much used for unearthing foxes and badgers from their burrows.

Of Pointers, Setters, Retrievers, Spaniels and other sporting dogs, there were large numbers, comprising all colors.

The Spaniel may be called a native of both sides of the Mediterranean Sea, as the earliest history finds it there.

Of the Hound species there were numerous representatives. The Greyhound has a very ancient history on the Eastern continent, and, in form, differs much from all other species of dogs. The largest variety is the Scotch Deerhound, of which one specimen exhibited was 31 inches high, had a length of head 13 inches, body 82 inches, with an extension of tail 28 inches. This variety is scarce, and valued very highly for hunting large game. They are all of a blue-gray color.

The finest type in form, and said to be of the greatest speed, is the Algerian Greyhound. They are of a light-fawn color, and highly praised in their native country.

The smallest species of the Hound is the Beagle. They have large heads, long ears, angular bodies, with short and very crooked legs.

There were 11 exhibits of the Shepherd species. Those of France were quite large animals, with short hair and mostly of a black-and-tan color.

The Scotch Collie, very highly valued in their own country, is of small size, with long and fine hair, usually black and white, with tan color on the ears, jaws and legs. This species of the Shepherd-dog is very quiet in his actions and easily trained. Those on exhibition were mostly sold at high prices.

There was a large number of the Poodle species, mostly owned by the French, ranging from a medium animal down to a pound in weight.

Altogether, the exhibition was a fine opportunity for the study of this species of animals.

HORSES.

The exhibition of horses was the last of the series, and was held from the 1st to the 10th of September. In the meantime the stalls occupied by the cattle were rearranged to suit the purpose, and all the other pens removed from the ground. There were over 1,000 specimens of the race, comprising representatives of nearly every type known at the present time. I shall only give a brief notice of the most noted breeds of the present time that were on exhibition.

Of the form and nature of the early European horse very little is known. The modern speed-horse of that country seems to have been entirely produced by the introduction of the Arabian and Barb from the East. Under the name of Arabian horses, there are in Europe several varieties, but, either from influence of climate or breeding and raising, they differ very much from the Asiatic horse. The most valued of the Arabian horses are those brought from Persia and Syria, but they are to be found in all Mussulman countries of Asia, Africa and Europe.

The Arabian, so widely known, and of which so much has been written, has, as it will appear, been extensively used in the improvement of the lighter horses of Europe. These horses are rather small size, seldom exceeding fourteen hands in height, and may be thus described: Head short, very wide across the forehead; dished face; muzzle fine; under jaw bones large and wide apart; the eye full and mild, with a rather sleepy expression when quiet, but sparkling under the least excitement; the ear is small, pointed and sensitive; the neck only moderately arched on top, and very light at the throat-latch; windpipe very large and prominent; shoulders slanting and muscular; withers thin, and on some of the animals exhibited a little low, others full; ribs round; the back is straight; the hips narrow and rounded on top; the croup is straight and thin to a fault; the tail set on too high for our idea of symmetry; the limbs are finely formed, the lower parts flat and sinewey, with almost a total absence of flesh; pastern-joint small, short and straight; foot small, and hoof black and irony. They are of varied colors, and were represented by gray bay and black. They were all light in mane and tail small, with fine hair.

The Barb horse is only the Arabian species with another name. They have the same form in nearly every particular, but it is thought the average size is less than the Asiatic race, and not so enduring on long journeys.

ENGLISH RACE-HORSE.

This horse, which is probably not a distinct race of horses, but only the outgrowth of a cross between the horses of the East and the native horses of England, has had his geneology so often written that it is not worth while to repeat it here.

The blood of the thoroughbred predominates in the beautifully-formed saddle-horse, so highly prized for hunting. The clumsy horse, used in former times to draw the heavy coaches, has been remodeled by crossing with the thoroughbred until the value for the purpose used is doubled, and the thoroughbreds have found their way into almost every country in Europe, where their introduction has likewise been productive in improvement. In a number of instances they have been the founders of what may be classed a distinct race for specific purposes. The American trotting horse, in the hands of our people, has won a world-wide reputation for speed, yet it is largely but a dismembered branch of the English thoroughbred.

DANISH HORSES.

There is a large, coarse and rough race of draft horses found generally in Schleswig-Holstein. It does not possess the merits of a good draft-horse, being a great consumer and a loose-jointed animal throughout, with large, flat feet. Not being attractive in appearance, and possessing no points to recommend them, they have never been in much demand, and consequently have not spread outside of where they were first noticed.

The most noted of the Danish horses is known as the Jutland race. It is a breed of long standing, without any reliable history. All that is known of its early history is traditional. No stud-book or record of any form has been kept, yet it is said that great care has been taken to breed them pure.

The Jutland horses are noted for their fine symmetry of form, and their adaptability for draft, speed and saddle purposes. They are models of perfection of what we style "horses of all-work" in our fair catalogues. They are usually of a dark-bay color, with black mane and tail, and average in weight about 1,000 lbs.

They have sufficient size and strength for ordinary draft purposes, have the style and speed for carriage use, and are highly prized as cavalry horses. As a horse for agricultural purposes, it would be very valuable in our country, and, being a breed of long standing, would closely transmit its valuable qualities in crossing. Its value is recognized at home, and these horses command the highest prices of any class in Denmark.

RUSSIAN HORSES.

Throughout the vast empire of Russia the horses have, without doubt, originally come from Asiatic sources, but have been much reduced in condition by hard usage and exposure to the severity of the climate. During the last century there were numerous studs established by the rich land-owners, where they bred horses with the intent of improvement, with varied results, by importing breeders from England and other countries. However, it does not seem that any but one particular type of a race was thus founded. That which has become one of the historical races of the country is known as the Orloff trotters, taking the name of their founder, Count Orloff Tchesmensky. It was in 1778 that the Count established the stud, which soon became celebrated on account of the animals produced. By the history of this stud it is shown that very close inbreeding was followed for successive generations, and that the type of the race became very uniform.

The animals of this breed owned and exhibited at Paris by the Grand Duke Nicholas of Russia had a form somewhat resembling the English thoroughbreds, but much more that of the American trotter. They are heavier than the English, more symmetrical in form, and have a longer and more drooping rump. The limbs are shorter, heavier, and the joints larger, but indicative of great power and durability.

The Grand Duke Nicholas of Russia has a remarkable fondness for the horse, and he is to-day one of the largest breeders in Europe. From early youth he had a great desire to establish a stud on a grand scale, with the hope of improving the horses of his country.

He seems to have followed in the footsteps of other leading breeders by selecting the oriental blood as a basis to build from, but he had a different object in view. His desire was to combine speed, durability and size, not exclusively for sporting purposes, but to produce animals that would generally improve the horses of his country, especially for the cavalry of the army. Both the oriental horse and the English racer were objectionable in size for the purpose. By present from the Emperor, in 1858, he became the owner of the grounds and buildings of the stud, then owned by the government, of Tchesmensky, the original home of the Orloff trotters. Since that time his progress has been rapid, and now the stud contains probably the finest assortment of horses to be found anywhere, consisting of pure-blood Arabians; English and Arabian crosses, in which the oriental blood predominates; saddle-horses of superior form, with good size, the produce of a system of crossing; and the Orloff trotters, as bred by their founder.

The enterprising breeder had twenty-seven animals at this exhibition, which, as a lot, was one of the most attractive in the whole show. Each of the different varieties that he is breeding was represented by beautiful creatures. One of the most attractive animals in his exhibition was a dark-brown Barb stallion, imported from Barbary in 1867. This noble-looking animal was over 16 hands high, finely proportioned in every part, with the style of a war-horse, which in fact he is, being the steed that carried his master over the Balkan Mountains in the recent Russian and Turkish war.

HUNGARIAN HORSES.

No country in Europe, in proportion to its territorial area, raises so many horses as Hungary. Other varieties of stock are much neglected, while the horse seems a specialty with the inhabitants.

The large number of horses used in the Austrian army nearly all come from Hungary, and in addition to this they export from 30,000 to 40,000 each year to other parts of Europe. For cavalry purposes, the Hungarian horse ranks highest of any in Europe. The horse interests are aided by the government, which has established four studs, each supplied with 1,000 stallions, that are distributed through the country during the breeding season, and the raisers have the use of them at a small cost. No inferior male animal is allowed to reproduce. By this care the great majority of horses raised are superior animals, and the raisers realize good prices. For a succession of years the average price of horses exported was from $125 to $140. There were 56 horses exhibited from Hungary, under the direction of the government, from different departments, so as to more generally represent the horses of the whole country, with the intention of thus increasing by advertising their already large export in this class of stock.

At the commencement of the present century, horses of Hungary had no special claims to merit, but under the guidance of the Minister of Agriculture the blood of the Arabian and English thoroughbred has been at different periods introduced, and now so generally infused throughout the country that the horses have assumed a very fair average type, which is, however, rather below the standard size of a good saddle-horse.

The breeding of heavy horses for draft use has never had much attention in Hungary. Much of the labor in agriculture is done by cattle. In some parts of the country the horses are very large, and of late years are attracting attention for heavy work.

FLEMISH DRAFT-HORSES.

The heavy draft-horse was first found in Northwestern Europe, records showing that a race of large black horses existed there at an early period of history. They were well known to the Romans, who procured the most powerful horses for their cavalry from Belgic Gaul. On the coasts of the North Sea, the descendants of these horses are yet found, but evidently much changed from the former type, if ever they were serviceable for cavalry purposes.

We find them mostly in Belgium, where they are classed by different names from the districts where raised, but they are really the same horse.

The Hainaut and Brabant horses are materially the same in form, but those found in Belgian Flanders are the real giants of the race. They attain the highest size and the greatest dimensions, usually about 17 hands high.

They are slow in gait, and effeminate in temperament. This race at present seems to be but little removed from the type attributed to the primitive race of Friesland. The other classes of this race seemed to be much improved, but the lot on exhibition, which was numerous, did not show equal improvement with other races of draft-horses which history traces to the same origin. That a horse can be large and yet have the style and finish of an attractive animal, was well shown by the other breeds in stalls by their side.

LINCOLNSHIRE CART-HORSE.

The modern history of England finds the same large race of black horses there that was on the continent, from whence they were doubtless derived. Their forms as described then are much the same as the Flemish horse now.

The first regular attempt to improve them was made during the last century, by the Earl of Huntingdon, who imported several Dutch coach stallions, but of the results of this cross nothing is said. Many years afterwards Robert Bakewell imported several mares from Holland and crossed them with the native stallions, and by pursuing a careful system of selecting and crossing made much improvement in the form of the original horse. Since that time there has been continued improvement, until now the great English draft horse is classed as a breed. At the present time they are crossing with the Scotch Clydesdale; and the animals exhibited seem to bear proof of this in the fact that the black color, which distinguished the English draft horse in the fore part of this century, has been bred out, and now bright bay and brown bay are the colors of those exhibited. There are also numerous teams of dapple gray to be seen, of this breed.

These horses have the appearance of being herculean in strength, and they are not without that symmetry of form which makes them attractive to the eye. Two of these powerful horses attracted much attention. Carlton Tom, bred by Mr. Rigby, of Carlton Grange, England, a dark bay, 3 years old, was 17 hands high, and weighed 2,200 pounds. He was a representative type of the others exhibited.

These horses have great strength, but are unusually slow in gait. They are in demand and bring good prices, for the heavy drays in the cities. Of this breed come what are termed the brewers' horses in London, which are said to be the largest horses in the world.

SUFFOLK PUNCH.

The Suffolk Punch is the draft horse of the midland counties of England. Their origin is unknown, but some writers claim them to be descendants of the ancient Norman race. It is evident they have been bred in a different line, with a view of combining more strength and action. In size they are less than the cart horse just described, and have more muscle. The limbs are shorter and finer, without the long hair. For general use or work they are preferable to the great dray horse, and are called the agricultural horse of the country. They show a more defined type of breed than the other, being nearly all a chestnut-sorrel, with silver mane and tail. They have an excellent reputation of being true pullers.

The animals of this race on exhibition were more in accordance with our ideas of the kind of draft horses needed in our country than all others. In weight they were from 1,500 to 1,700 pounds, and undoubtedly have more action and durability than the others. Their feet are of medium size, hoof solid and arched at the bottom. In walking they have a long and quick step; a swinging trot, that saves the muscles of the shoulders.

The Suffolk Punch derives his name from the county of Suffolk, where history first finds him, and his surname from his square, compact form of body. The breeders of this race are proposing to call them "agricultural horses,"—but undoubtedly their original name will follow them.

CLEVELAND BAY.

This is a name given to a class of horses first noticed in Yorkshire, England, the name being taken from the district of Cleveland. The prevailing color is a bright bay.

In the latter part of the last century the district became known for producing a heavy horse suitable for coach and cavalry purposes. They are the produce of a cross between the race-horse and the large native horses of the country, and are so well defined in type as to justify the classing of them as a breed. But their history shows that the breed has been subject to changes in form to suit the times. Traveling by steam has done away with the old-fashioned coach, and the improvement of public roads has reduced in size the cumbersome carriage used in those days; consequently, these horses have been reduced in bulk by a further infusion of the blood of the thoroughbred horse, to conform to the wants of the times.

Those on exhibition were very symmetrical in form, the limbs lengthy and fine. They were classed in the catalogue as horses for the saddle—no doubt the most fitting place—and their value for cavalry purposes is beyond question. The demand for them at home and on the continent for that purpose makes the breeding of them profitable.

CLYDESDALE HORSES.

This race of heavy draft horses takes its name from the river Clyde, in Scotland. The Clydesdales have undoubtedly a similar origin to that of the English cart horse,—and even now there is a resemblance between the two breeds. The Scotch have a tradition that during the twelfth century one hundred choice stallions were imported from Flanders, the same source from which the progenitors of the Lincolnshire cart horse were derived.

It is evident there has been a different object pursued in the breeding of the Scotch horse. The English breeders of the dray horse seem to have had in view the aim of producing immense size and strength, combined with slow action. The Scotch, on the other hand, have as their object size, strength, and quick movement,—which they have succeeded in establishing in the breed. This result has given them a superiority that renders them more desirable for many purposes, and therefore more valuable than the English cart horse. At the present time the English breeders find the Scotch horse in better demand than their slower animal, being but a trifle less in size and strength. Their greater speed was well displayed as they were moved at rapid gait while being examined by the jury. They have a reputation, like the Suffolk Punch, of being very true and steady pullers. Their general color is bright bay, though gray and brown are often seen among them. Their peculiar marks are a white stripe in the face and white hind feet, often extending up nearly to the hock.

The Clydesdales exhibited by Lawrence Drew, near Hamilton, Scotland, were very fine specimens of the race, and showed much uniformity of type. As a group they attracted much attention, and were awarded the highest premium given to foreign draft horses. That they command high prices at home is evident.

At a public sale of Lawrence Drew, held at his home on the 9th of last April, we noticed that two-year-old stallions brought, respectively, $975, $1,050, $1,500, and $2,400. The last priced animal had a grand action and fine style, which at once stamped him as a Clydesdale of the very highest order. Action and style indicate the distinctive difference between the Clydesdale and the Lincolnshire.

FRENCH HORSES.

The condition of the horse in France at the present time is very much the same as it is in the United States; but a small percentage of their or our animals are of any well-defined strain or stock. Of the 776 specimens in the stalls at the Esplanades des Invalides, it was surprising how few were classed as belonging to any particular breed.

NORMANS.

Normandy is the great horse-raising portion of France.

The original stock is supposed to be of the Germanic race, introduced by the Northmen invaders, which has been modified by importations from England. Many of the Norman horses on exhibit on were classed as "Anglo-Norman."

Prof. André Sanson, a writer on this subject, refers to the mongrel character of the Norman horses as a body, and complains that ill-matching and ignorant crossing have substituted a race of half-bloods in the place of the old race, admitting at the same time that no faithful description of the old race is extant. He refers to the fact that the "operation of crossing, always difficult to execute, especially in the horse, does not often produce the fusion of character sought to be realized. Thus, sometimes will be seen in the same horse the fore-quarters of the ancient Norman and the hind-quarters of the English, and *vice versa*." He adds that "out of every hundred born not more than 25 per cent. become good horses."

This writer may represent the condition of these horses in their native districts, but it would not apply to the horses on exhibition. Here they denoted varied origin, but they must have been selected from the 25 per cent. of good ones, for they were generally of medium size, weighing from 1,000 to 1,200 lbs., with fine style and action. They would be classed with us, as they were at home, "horses for general purposes," many of which make fine carriage horses, others for light draft use.

From among them come the horses used in the cabs of Paris, and a large portion of the cavalry horses. If the English thoroughbred and Arabian crosses have injured the form, it certainly has given them physical endurance, for the cab horses of Paris are driven at a rapid gate for long trips over the solid streets, and, as a lot, they look better than that class of horses in other cities.

From the Southern part of Normandy come the Percheron horses, taking their name from le Perche, a part of the old province of Maine, now included in the departments of *Orne*, *Eure-et-Loir* and *Eure*. What is now called the Percheron Norman draft horse in our country is an assumed name on our part for horses imported from different parts of Normandy. Much has been written about them in our agricultural journals, mostly by interested parties, to prove their purity of blood and ancient origin. Some contend that they are strongly Arabian in blood, but the only resemblance that can possibly favor that supposition is the predominance of gray color in the two races. Others go back and claim them as descendants of the ancient Norman war horse, but the fact is, they are, like the different races of cattle found in France, without known origin, and the genealogy of an American Indian is as well ascertained as theirs. There is not now in France any race of draft horses classed under the name of Norman. The true Percheron horse, as I saw him in the streets of Paris and on exhibition, is about 16 hands high, weighing from 1,300 to 1,500 lbs. (mostly the former weight), with a short head, broad face, and a submissive eye, denoting more patience than ambition. The nostrils and lips are thick and unanimated, which are in unison with the expression of the eye. The neck is thick and short, withers extending well back on a sloping shoulder; back low, but very short between the withers and loins, which are wide and elevated above the line of the backbone. The rump is short and rounded. The limbs are well proportioned for a good rate of speed, combined with strength, but are nearly free of long hair on the after part of the lower limbs; this latter is, however, the result of careful clipping.

It is estimated that there are 10,000 of these horses used in the city of Paris on omnibuses, street cars, etc., and their fine appearance during hard service bears undeniable proof of their value.

BOULONNAIS DRAFT HORSE.

This large and valuable race of draft horses made its first historical mark in the vicinity of Boulogne.

The Boulonnais horse has a large body, thick neck and powerful limbs. There is no uniformity in the color. His constitution is excellent, and this breed furnishes the larger proportion of the horses used in Paris for heavy hauling.

BRETON HORSE.

The old Brittany race, which has such a long history, has become so mixed by crossing with the English horses that the former race is almost lost, and that country now has a reputation for producing good saddle horses only.

LIMOUSIN HORSE.

In that part of France formerly the old province of Limousin, there is a race under that name, which was formerly much noted for its oriental style and endurance, and history claims that when Charles Martel defeated the Saracens on the plains of Vouillé, near Poitiers, they fled, leaving a large number of their Arabian horses in the hands of the victors. What reliance can be placed on this tradition each person may determine for himself.

For the purpose of improving the horses of the Limousin, the French government established the celebrated stud of Pampadour, and introduced the pure Arabian, Anglo-

Arabian, and English race horse blood, until the horses produced have much of the oriental type, but still retain most of the good qualities found in the native stock.

I have mentioned the leading strains of horses as exhibited, all of which, with the exception of the Arab, have but recent origin as breeds, and are the results produced by selecting and crossing. Much has been done in the past to establish a certain line of breeding, to concentrate the blood of different types in the same species of animals, so as to produce a race that will transmit in reproduction a new form. This is a difficult task to accomplish, and the proximate success is the result of years of selecting, attended with many disappointments and failures. It is evident that all the noted speed and valuable driving horses owe much to the infusion of the blood of the Asiatic horse, while we owe to the large horse of Flanders, or vicinity, the modification of the various native races which now appear as breeds of draft horses. The breeding to successfully establish a distinct color in the coat of any of our domestic animals is much more easily done than to produce a definite and established form.

The influence of climate, soil, and the manner of keeping are all influences that affect the result. All improved breeds of domestic animals are variations from a normal condition, and have a constant tendency to revert to primitive conditions.

One of the greatest errors that the agriculturists of our country labor under in their stock growing results from misunderstanding or inattention to this fact, the reposing of all confidence in the race or breed, and but little in the subsequent care. This neglect is sure to produce disappointment in the end, and too often the stock itself is charged with the failure instead of the breeder.

Nowhere in Europe is the growing of live stock conducted on such fixed principles as in England, and no other country has met with so great success. The various agricultural districts have sought to produce the breeds of stock best suited to the character and quality of the land embraced in the given region, as, for instance, the growth of Leicester and Lincoln sheep in the flat and rich pasture counties, and the Southdown and Hampshire Downs on the short and sweet herbage of the chalky downs of the south of England. In all cases the native stock of the country has been used as a basis upon which to build up by selection, or importing from other districts such stock as was desired to produce the result in view.

The practice does not so generally prevail on the continent. Thus, Holland had for centuries, probably, the same class of dairy cattle, and France has a number of distinct races, each of which has been bred to a remarkable uniformity in form, color and essential qualities, as I have had occasion to remark in reference to the cattle of that country. How long many of these breeds have been in assuming their present uniform type, we have no history to inform us, either as to time or methods pursued,—but they are doubtless the result of care in selecting and mating for a specific object in view.

The equine species on the continent of Europe have until recently been very much much mixed, in breeding, but at the present time there is a general effort to centralize on distinct classes and breed to a standard. At the Exposition they were divided into three classes, viz: speed, or horses for luxury; saddle horses, and draft horses.

The amount of prizes offered was $30,000. Only experts were allowed to act as jurors, and their awards seemed to give more satisfaction than is usual in such tests of animal merit.

There can be no doubt that the results of this exhibition will have a material influence on the future breeding of horses in Europe, and it should have its influence in this country on the masses of stock-raisers, by convincing them of the fallacy of breeding for chance results. It is true, we have well-established breeders of all classes of stock, but how few of them have fixed principles! But very few of those who attempt to make improvement by selecting and crossing succeed in arriving at anything that is permanent, on account of the want of patience and perseverance in the one direction. It is a difficult task, under the most favorable circumstances. One, two, or three crosses are tried in a certain direction, with partial success, when, instead of continuing on, some new project presents itself, and a new cross is attempted—and all is lost.

The breeding of live stock is a science, or profession, that requires study and experience, and cannot be outlined in an essay. When our agriculturists and stock-raisers study the principles and act in concert, as is now being done in Europe, the stock interest in our country will appreciate in value, and become a much greater source of revenue to our people.

In concluding the report of my observations at the exhibition, I desire to say that I was everywhere kindly received by the officials and exhibiters, every opportunity being afforded me to gain the information that I desired.

SAMUEL DYSART,
Additional Commissioner.

Secretary's Report.

To the Illinois State Board of Agriculture :

The details of the regular work of the department during the past year are very fully covered by the reports of the standing committees, which have already been considered by the board.

This report will mention other matters in connection with the work of the office deemed worthy of your consideration.

WORK OF THE DEPARTMENT.

The steady growth of the work of the board from year to year, in not only more thoroughly cultivating the fields heretofore occupied, but the extension of the work into new territory each year, has attracted general attention to the efforts of the board, and secured the hearty coöperation of prominent agriculturists in this and other States.

The cordial support and influence of the farmers of the State have very generally been assured the board. The correspondence of the board during the past year exceeds that of any former year, and has required over three thousand (3,057) communications in reply. The number of circular letters sent out, and not included in the above number of letter-book copies, would largely increase the number of letters forwarded from the office.

ANNUAL REPORT.

It has been the purpose to have the annual report of the board contain each year a brief historical account of all matters relating to the industries that the State Board of Agriculture is especially delegated by law to foster and encourage.

Special efforts have been made to encourage the organization of State associations, composed of men interested in special departments of agriculture.

The annual reports have contained the proceedings of the Illinois Dairymen's Association, Illinois Swine Breeders' Association, Illinois Wool-Growers' Association, Illinois Tile Makers' Association, Illinois Cane Growers and Sugar Makers' Association, crop and live stock reports, and papers prepared by the Entomologist, Botanist, Geologist, Chemist and Veterinarian of this board. This matter, with

the proceedings of the meetings of the board and the reports of county agricultural boards, has usually required all the space in the report allowed by law, and generally includes all the new features developed during the year that are of especial interest to the farmers of the State.

The State organizations named have succeeded in securing the hearty coöperation of the best recognized home talent in the several departments, and the papers and the discussions published are read with interest, and reflect much credit upon all concerned.

It will be seen that, outside of the proceedings of the associations named, the annual reports of the Department of Agriculture are almost entirely occupied with the work of the board, which may be classified as follows: 1st—The Illinois State Fair. 2d—Fat Stock Show. 3d—Collection and compilation of crop and live stock statistics. 4th—Department work—the latter consisting of the general correspondence, preparation of the various reports, and the performance of other work designated by the board.

In the correspondence and otherwise, especial attention has been given to the matter of encouraging the adoption of a more profitable system of agriculture, to the end that, by more thorough cultivation and due consideration for improving the great natural fertility of the soil by proper rotation of crops and otherwise, still better results may be obtained by the farmers of the State, for years to come.

The initial experiments of some of our best farmers indicate the great possibilities in the near future of the agriculture of the State when thorough drainage, good cultivation, careful selection of seed, and proper attention is given to the improvement of the deep, rich soil, which responds so wonderfully to artificial aids, more or less deficient in all soils, as demonstrated by the science of chemisty.

MIXED HUSBANDRY.

One of the most encouraging features of the progress of agriculture in the State is the increased attention given to the growing of a greater diversity of crops, which not only enables the farmer to subsist to a greater extent on his own productions, but in a great measure to guard against over-production and failures in obtaining remunerative prices, more likely to occur under the old system of growing exclusively wheat, corn, hogs or cattle.

Not the least advantage of mixed husbandry is the constant occupation given the farmer most of the year, and the better distribution of the labor of planting, cultivating and harvesting, which enables the producer to perform a greater proportion of the work, and thus lessen the expense of hired help.

The latest official returns show that more or less attention is given to the cultivation of all the leading crops grown in this country, and that the dairy and live stock interests are being rapidly extended.

The extent of area of principal crops grown in the State may be approximated from the following figures, giving the per cent. of area of each to the total acreage in the State for the year 1879, viz: corn, 21.99; winter wheat, 7.03; oats, 4.93; meadows, 6.71; pastures, 12.29; woodland, 10.74; uncultivated land, 6.89; while the following

crops each occupy respectively less than one per cent. of the total acreage of the State: Spring wheat, orchards, rye, barley, buckwheat, castor beans, beans, peas, Irish potatoes, sweet potatoes, tobacco, broom corn, hemp, cotton, flax, sorgo, root crops, fruits and berries, and other crops not named.

Owing to the fact that a considerable area of the State has not been included in the returns of assessors, it is impossible to give the relative increase or decrease in the acreage of the several crops.

The last returns of agricultural statistics by assessors contain over seven per cent. more of the total area of the State than for the previous year, and the increased interest and more apparent benefit to the counties resulting from the publication of such statistics, will doubtless insure more complete returns in the future.

MUSEUM.

The new cases provided for the Museum during the past year have been filled with a large collection in taxidermy, which, with the addition of many new samples and specimens of grains, seeds and non-perishable agricultural products, secured largely through the personal efforts of Miss Belle Bradford, the Curator, have attracted much attention.

The Museum, while far from complete, serves a very valuable purpose in advertising the varied resources of the State to the many thousand visitors from other States that annually visit the Capital.

The Curator, in addition to the duties of keeping the Museum in good order, and giving information to visitors, has most creditably performed more than the average amount of work usually expected of a clerk.

LIBRARY.

The constant use of the Library by the farmers of the State and others interested in industrial pursuits, conclusively proves the necessity of a reference Library of this character, where the general public may have access to the best standard works relating to the various departments of agriculture.

The care of the library has devolved on Mr. D. C. Hoyt, who has had the arrangement of the books, periodicals and papers, and the credit of the neat appearance of the Library and other rooms of the department is due to his efforts.

Mr. Hoyt has also rendered good service in connection with the clerical work of the office.

STATE FAIR.

At the close of another decade (1880), it may be interesting to examine into the growth of the Illinois State Fair, which has made steady advancement for over a quarter of a century.

The following table gives the amount of premiums offered in the several departments during the last twenty-eight years, showing an aggregate of nearly three hundred thousand dollars.

This substantial encouragement given all classes interested in the development of our industrial interests has had much to do with the rapid growth of agriculture in this State.

The table shows that the board has, from time to time, enlarged upon the character of the exhibition as well as in amounts offered to meet the growing wants of the public.

The amount of premiums offered at the State Fair has been increased from $1,445 in 1853, to $17,486 in 1880, and the latter sum does not include $3,445 offered in premiums at the late Fat Stock Show, which would make over twenty thousand dollars offered by the Illinois State Board of Agriculture the past year, as an incentive to the industrial classes for excellent results in their respective departments of labor.

Amount of premiums offered by the Illinois State Fair—1853–1880.

Place of Fair.	Year	Cattle	Horses and mules.	Sheep	Swine	Poultry	Mechanics	Farm products	Horticulture	Fine arts	Textile fabrics	Natural history	Equestrianism	Miscellaneous	Total	Education
Springfield	1853	$435	$185	$150	$105	$13	$130	$112	$154		$121				$1,445	
Springfield	1854														4,229	
Chicago	1855														4,229	
Alton	1856	1,150	1,018	160	140	53	595	350	82		427	$180		$75	4,230	
Peoria	1857	3,040	2,255	330	210	151	845	379	180		316	175		55	7,936	
Centralia	1858	2,084	2,005	845	200	62	325	164	628		204	30			6,547	
Freeport	1859	2,324	2,175	665	185	63	360	285	641		203	75		283	7,209	
Jacksonville	1860	1,865	3,185	870	285	35	1,770	251	580	130	238	386		731	10,326	
Chicago	1861	2,520	4,415	1,000	795	35	1,123	528	760	424	496	475		671	13,272	
Peoria	1862	1,500	1,630	720	470	36	352	279	396		148	240		328	6,099	
Decatur	1863	1,205	1,290	720	400	36	580	454	350		148	120		378	5,681	
Decatur	1864	1,385	2,145	830	405	36	55	618	381		410	300		375	6,940	
Chicago	1865	1,460	2,264	1,005	410	36	105	634	654		461	150		345	7,524	
Chicago	1866	1,460	2,320	1,145	410	38	1,070	720	692		458	360		660	9,333	
Quincy	1867	1,705	2,425	1,310	570	54	320	696	1,088		464	305	$180	120	9,237	
Quincy	1868	2,010	2,765	890	570	54	261	637	1,140	75	485	305	330	80	9,602	
Decatur	1869	2,023	3,110	920	695	64	340	812	1,045	75	475	305	330	60	10,254	
Decatur	1870	2,320	3,345	1,025	1,400	185	515	867	1,104	95	515	305		110	11,786	
Duquoin	1871	2,820	3,355	785	1,400	255	395	717	993	80	519	305		310	11,934	
Ottawa	1872	3,100	3,535	775	1,400	255	585	725	997	105	531	295	144	280	12,739	
Peoria	1873	2,970	2,550	775	1,450	257	1,285	717	1,745	145	440	295	88	310	3,027	
Peoria	1874	3,655	3,845	1,065	1,740	502	185	770	1,790	181	413	300	88	200	11,734	
Ottawa	1875	3,375	5,430	1,020	1,740	647	185	1,088	1,949	181	421	440	88	475	11,039	
Ottawa	1876	3,255	3,704	920	1,450	647	195	697	1,252	181	565	340	25	1,580	14,811	
Freeport	1877	3,595	3,410	660	1,485	663	150	674	1,125	161	588	340	18	1,445	14,814	
Freeport	1878	3,525	3,940	775	1,420	784	150	684	1,239	96	480	400		1,105	14,898	$300
Springfield	1879	3,495	4,001	1,290	1,485	812	180	711	1,289	96	557	235	Speed.	1,500	15,856	305
Springfield	1880	3,570	4,001	1,290	1,475	817	180	726	1,374	91	565	235	2,340	500	17,486	322

RECEIPTS AND EXPENSES STATE FAIR.

The following table gives the receipts and disbursements for premiums and expenses of the State Fair during the last twenty-eight years, which shows that over half a million dollars have been collected and expended by the board in promoting the industrial interests of the State through the medium of the Illinois State Fair.

The stimulus that the disbursement of this fund has given to the establishment of herds of improved breeds of farm animals, and better methods of farming throughout the State, cannot be estimated.

This large sum is but a fraction of the total amount expended by the county agricultural boards of the State, to say nothing of the gratuitous services rendered in this direction by many thousand friends of agriculture during more than a quarter of a century:

Illinois State Fair.

Place of Fair.	Year	Receipts, including balance	°Expenses	Premiums	Expenses and premiums	Balance in treasury	Deficit
Springfield	1853	$4,751 20	$2,954 04	$944 45	$3,898 49	$852 71	
Springfield	1854	6,344 85	1,754 76	3,146 79	4,901 55	1,443 30	
Chicago	1855	14,128 83	9,019 11	2,472 00	11,491 11	2,637 69	
Alton	1856	11,675 64	5,704 73	2,650 00	8,354 73	3,320 91	
Peoria	1857	19,198 82	6,542 85	8,104 54	14,647 39	4,551 43	
Centralia	1858	14,436 78	6,926 49	6,306 20	13,232 69	1,203 49	
Freeport	1859	16,814 69	7,318 31	6,967 46	14,285 77	2,528 92	
Jacksonville	1860	17,348 97	9,137 99	8,881 86	18,019 85		$670 88
Chicago	1861	14,824 56	9,969 99	4,286 50	14,256 49	568 07	
Peoria	1862	4,836 07	4,870 30	**815 50	5,685 80		849 73
Decatur	1863	15,251 70	8,356 59	4,862 00	13,218 59	2,033 11	
Decatur	1864	23,434 82	9,974 16	8,145 58	18,119 74	5,314 08	
Chicago	1865	28,739 06	15,627 84	8,204 00	23,831 84	4,907 22	
Chicago	1866	21,820 41	11,247 39	7,209 55	18,456 94	3,363 47	
Quincy	1867	32,974 82	13,298 51	10,608 14	23,906 65	8,068 17	
Quincy	1868	24,096 92	12,542 42	7,649 50	20,191 92	3,905 00	
Decatur	1869	27,407 70	11,356 95	9,227 79	20,584 74	6,822 96	
Decatur	1870	30,007 71	10,978 25	10,558 28	21,536 53	8,471 18	
DuQuoin	1871	25,186 43	10,261 28	10,060 46	20,321 74	4,764 69	
Ottawa	1872	29,758 84	9,880 43	10,750 44	20,630 87	9,127 97	
Peoria	1873	41,919 87	11,619 21	10,679 92	22,299 13	19,620 74	
Peoria	1874	44,810 59	14,040 61	12,541 00	26,581 61	*18,228 98	
Ottawa	1875	26,800 18	12,300 36	13,612 47	25,912 83	887 35	
Ottawa	1876	†24,915 55	13,099 10	5,977 42	19,076 52	5,839 03	
Freeport	1877	33,514 70	7,921 49	‡16,923 93	24,845 42	8,669 28	
Freeport	1878	26,544 73	§8,803 71	12,841 34	21,645 05	4,899 68	
Springfield	1879	31,656 91	‖13,678 56	15,003 96	28,682 52	2,974 39	
Springfield	1880	25,237 76	10,071 82	15,432 76	25,504 58		266 82

° Includes Winter Meeting expenses.
* $10,000 invested in U. S. bonds, $11,250.
† Includes proceeds $10,000 U. S. bonds, $11,250.
‡ Includes 50 per cent. premiums 1876, $5,518.
§ Includes $451 81 account Fat Stock Show.
‖ Includes $1,861 24 account of Fat Stock Show.
** No Fair. Premiums on field trial.

FAT STOCK SHOW.

The Fat Stock Show as yet has not proved to be a financial success, but has exceeded the expectations of its best friends in increasing the interest of Western feeders in early maturity and quality of stock fed for market, and consumers are largely indebted to the

forts of the Illinois State Board of Agriculture, through the me-
um of the Fat Stock Show, for the superior quality of stock that
now and will hereafter find its way into the Chicago markets.

The following table gives the receipts and disbursements of the
at Stock Show since its establishment in 1877:

Fat Stock Show.

Place of show.	Receipts.	Expenses.	Premiums	Expenses and Premiums	Balance in treasury.	Deficit.
hicago, 1878	†$5,075 87	$2,680 87	$2,395 00	$5,075 87	.....	$451 81
hicago, 1879	‡9,332 32	5,110 59	4,221 73	9,332 32	.....	1,861 24
hicago, 1880	°6,496 57	4,045 81	2,450 76	6,496 57	.....	578 18

† Includes $451.81 received State Fair funds.
‡ Includes $1,861.24 received State Fair funds.
° Includes $578.18 received State Fair funds.

The following table gives the number of entries, premiums offered
nd paid during the past eleven years by the fairs held in the State,
o far as reported:

Year.	No. of Fairs reported.	No. of entries.	Amount Premiums offered.	Amount Premiums paid.
870	56	39,188	$108,145	$85,154
871	49	51,373	117,381	92,426
872	51	51,793	105,396	82,989
873	70	63,105	151,324	112,360
874	89	89,763	206,481	145,401
875	87	98,879	263,476	192,903
876	93	96,648	230,250	154,043
877	94	113,925	230,300	168,237
878	90	108,483	224,907	154,116
879	93	120,634	241,083	175,900
880	88	97,898	217,645	147,473
Totals	.....	931,684	$2,096,388	$1,511,002
Average	.....	84,698	190,580	137,363

It was expected that the large crops of the previous year, and the
mproved financial condition of farmers, would have its effect in in-
reasing the number of entries at the various fairs, and encourage
air managers to increase their offerings; but the foregoing table
hows a large decrease in the entries, offerings and awards, as com-
pared with the past five years.

ENTRIES, OFFERINGS AND AWARDS.

The following table gives the number of entries, amount of pre-
miums offered, and amount of premiums paid in the several depart-
ments, by all the fairs in the State (so far as reported) during the
past five years.

The decrease in the number of entries, as compared with the pre-
vious four years, extends to all the departments except education,
in which there is a marked increase over previous years:

Illinois Fairs, total number entries, offerings and awards, 1876–1880 inclusive.

Departments.	1876.			1877.			1878.			1879.			1880.		
	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department
A—Cattle	4,939	$37,682	$22,697	5,783	$38,323	$25,375	4,789	$38,036	$38,704	6,303	$39,881	$25,992	4,812	$36,766	$20,889
B—Horses and equestrianism	13,007	44,395	31,657	14,933	45,843	36,253	14,101	44,547	31,956	15,767	43,498	33,643	12,022	41,352	29,531
B—Mules and asses	1,102	5,721	3,134	1,256	5,777	3,537	1,064	5,006	2,869	991	4,927	2,770	766	4,481	2,527
C—Sheep	3,052	9,630	6,446	3,798	9,949	7,071	3,459	9,148	6,430	4,362	10,124	7,650	3,390	9,919	7,025
D—Hogs	6,990	18,386	12,433	7,502	18,751	13,958	6,325	18,011	12,458	6,043	17,266	12,458	4,541	15,914	10,166
E—Poultry	4,841	5,696	3,654	5,014	9,357	3,726	5,220	6,177	3,813	5,373	6,680	3,678	4,495	6,868	3,368
F—Mechanics	4,550	10,179	5,553	6,066	10,643	5,924	4,620	9,687	4,994	5,006	9,187	4,289	4,823	7,846	3,553
G—Farm products	13,032	11,813	7,278	16,600	11,201	7,897	12,981	9,451	6,240	18,629	11,233	8,052	13,602	10,016	6,469
H—Horticulture and floriculture	20,388	12,605	8,975	21,579	13,221	9,933	25,562	12,579	9,617	25,078	12,151	9,350	21,216	11,435	8,204
I—Fine arts	4,953	5,942	3,635	5,659	5,946	3,534	4,935	5,177	3,081	6,158	5,412	3,400	3,761	4,123	2,508
K—Textile fabrics	13,575	11,631	7,069	18,553	11,763	8,541	18,017	10,968	7,891	19,124	10,578	7,634	17,868	10,904	7,674
L—Natural history	.....	.....	.....	.....	.....	.....	284	1,088	488	419	786	500	366	820	536
M—Military prize drill	.....	.....	.....	.....	.....	.....	.....	.....	.....	15	1,825	1,315	8	500	350
N—Education	.....	.....	.....	.....	.....	.....	418	631	432	517	763	638	976	621	527
Speed ring	1,761	54,347	39,578	2,020	48,329	38,920	1,939	48,496	36,193	2,510	64,749	51,836	2,239	53,271	40,842
Miscellaneous	4,458	2,223	1,934	4,462	4,280	3,395	4,769	5,905	3,950	4,230	3,491	4,107	3,008	2,807	3,302
Totals	96,648	$230,250	$154,043	113,925	$230,300	$168,237	108,483	$224,907	$154,116	120,525	$242,551	$177,312	97,893	$217,645	$147,473

Departments.	1876.			1877.			1878.			1879.			1880.		
	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department	Number of entries in each department	Amount of premiums offered to each department	Amount of premiums paid to each department
A—Cattle	57	$438	$263	61	$407	$269	53	$422	$263	67	$429	$279	55	$418	$237
B—Horses and equestrianism	150	515	367	158	487	385	157	495	355	169	467	361	136	470	335
B—Mules and asses	12	66	36	13	61	37	12	55	33	10	53	30	9	51	28
C—Sheep	35	112	75	40	105	75	38	102	73	46	109	82	38	112	80
D—Hogs	81	213	144	79	199	150	70	200	138	65	186	134	52	181	115
E—Poultry	56	66	42	53	67	40	58	68	43	57	72	39	51	78	38
F—Mechanic arts	53	118	64	64	113	65	51	107	56	54	98	46	55	89	40
G—Farm products	151	137	84	176	119	84	144	105	69	200	120	86	155	113	73
H—Horticulture and floriculture	237	146	104	229	140	105	284	139	107	269	130	100	242	130	93
I—Fine Arts	57	69	42	60	63	37	55	57	35	66	58	86	42	47	28
K—Textile fabrics	157	135	82	197	125	90	200	122	88	205	113	82	203	124	87
L—Natural history	.....	.....	.....	.....	.....	.....	3	12	5	4	8	5	4	9	6
M—Military prize drill	.....	.....	.....	.....	.....	.....	.....	.....	.....	1-6	19	14	1-11	6	4
N—Education	.....	.....	.....	.....	.....	.....	5	7	5	5	8	6	11	7	6
Speed ring	20	631	460	21	514	414	21	538	403	27	695	557	25	605	464
Miscellaneous—For articles not proper to be classified in any of the above departments	51	26	22	47	45	36	53	64	44	45	37	44	34	32	37
Totals	1,117	$2,672	$1,785	1,198	$2,445	$1,787	1,204	$2,493	$1,717	1,289	$2,602	$1,901	1,112	$2,472	1,671

DISTRIBUTION OF PREMIUMS.

The following table gives the average number of entries, average of premiums offered and paid by all the fairs held in the State during the past five years, numbering four hundred and fifty-eight fairs.

The table will aid the managers of fairs in preparing their premium lists, and enable them to make an equitable distribution of premiums to the several departments:

Departments.	Number of entries in each department.	Amount of premiums offered in each department	Amount of premiums paid in each department
A—Cattle	60	$425	[illegible]
B—Horses and Equestrianism	155	490	[illegible]
B—Mules and Asses	10	55	[illegible]
C—Sheep	40	110	[illegible]
D—Hogs	70	195	[illegible]
E—Poultry	55	70	[illegible]
F—Mechanic Arts—Light machines, agricultural implements, stoves, castings, worked metals, household furniture, manufactures of various kinds, engines, machinery, etc.; vehicles, sewing and knitting machines, etc	55	105	[illegible]
G—Farm Products—Grain, seeds, vegetables, butter, cheese, cakes, etc	165	120	[illegible]
H—Horticulture and Floriculture—Trees, fruits, flowers, plants, canned and preserved fruits, jellies, pickles, etc	250	135	[illegible]
I—Fine Arts—Musical instruments, sculpture, painting, drawing, wax, feathers, hair work, etc	55	60	[illegible]
K—Textile Fabrics—Mill fabrics, household fabrics, needle work	195	125	[illegible]
L—Natural History—Botany, Minerology, Conchology, Entomology, Ichthyology, Herpetology	2	6	[illegible]
M—Military prize drill	.....	5	[illegible]
N—Education	4	4	[illegible]
Speed ring	25	600	[illegible]
Miscellaneous—For articles not proper to be classified in any of the above departments	45	40	[illegible]
Totals	1,186	$2,555	[illegible]

CAPITAL STOCK, PROPERTY, ETC.

The following table gives the amount of authorized capital stock, property, etc., of all the fair associations in the State, so far as reported, the past five years.

The cash value of real estate and the improvements thereon, owned by the fair associations reporting, is over half a million of dollars:

	1876.	1877.	1878.	1879.	1880.
Amount of authorized capital stock	$486,900	$417,010	$363,085	$391,580	[illegible]
Number of shares of stock issued	22,378	26,216	21,698	24,518	[illegible]
Amount of stock issued	.....	$302,283	$288,246	$316,993	[illegible]
Number of shareholders, or members	20,341	18,850	16,246	15,368	[illegible]
Cash value of real estate and improvements thereon	$702,998	$668,627	$604,262	$568,218	[illegible]
Number of volumes in library	847	1,426	619	616	[illegible]

FINANCES.

The following table gives the aggregate receipts and disbursements f all the fairs held in the State during the past five years, so far s reported.

The fairs of the State have paid a larger sum for real estate and nprovements during the year 1880 than in any previous year.

The amounts paid for premiums and expenses are less than uring the preceding year.

The financial condition of the fairs of the State have not been mproved during the year 1880:

Financial Exhibits Illinois State Fairs, 1876–1880.

Receipts and Expenses.	1876.		1877.		1878.		1879.		1880.	
Amount in treasury, last report	.....	$10,530 79	.....	$15,850 18	.....	$26,587 61	.....	$17,526 95	.....	$18,305 14
Amount deficit, last report (including debt covered by mortgage	$27,097 33	.....	$119,824 34	.....	$111,646 93	.....	$106,396 13	.....	$94,445 97	.....
Amount received in fees—gate and entrance	.....	175,075 48	.....	234,331 81	.....	203,440 74	.....	234,026 69	.....	200,550 82
Amount received in booth rents and permits	.....	34,362 04	.....	33,783 35	.....	34,558 47	.....	40,842 82	.....	37,164 00
Amount received, sale shares of stock	.....	14,892 21	.....	3,592 80	.....	5,044 08	.....	11,532 25	.....	20,074 91
Amount received, State appropriations	.....	.....	.....	10,050 00	.....	10,250 00	.....	10,166 66	.....	9,400 00
Amount received, other sources	.....	46,227 44	.....	18,419 29	.....	19,102 37	.....	29,640 01	.....	23,469 88
Amount paid, in premiums	150,287 98	.....	168,032 60	.....	154,581 59	.....	175,954 66	.....	147,473 07	.....
Amount paid for real estate, buildings and permanent improvements	40,242 14	.....	34,374 62	.....	36,812 97	.....	45,195 29	.....	58,205 95	.....
Amo'nt paid for current expenses other than premiums	80,052 52	.....	78,431 82	.....	84,295 09	.....	94,245 30	.....	88,442 65	.....
Amount remaining in treasury	15,647 25	.....	27,640 28	.....	21,310 01	.....	22,847 17	.....	17,784 90	.....
Amount deficit (including debt covered by mortgage)	.....	32,434 45	.....	112,363 28	.....	109,663 32	.....	100,903 17	.....	97,387 79
To balance	195 19	.....	87 05	.....	.....	.....	.....	.....	.....	.....
Totals	$313,522 41	$313,522 41	$428,390 71	$428,390 71	$408,646 59	$408,646 59	$444,638 55	$444,638 55	$406,352 54	$406,352 54

PURE BRED STOCK.

The following table shows the number of entries, amount of premiums offered, and the amount of premiums paid to Pure Bred Stock exhibited at the fairs held in the State during the past four years.

Pure Bred Stock.	1877.			1878.			1879.			1880.		
	No. of entries	Amount of premiums offered	Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid	No. of entries	Amount of premiums offered	Amount of premiums paid
CATTLE—												
Shorthorn	2,206	$12,827	$10,514	1,961	$11,098	$8,361	2,485	$12,675	$1,291	1,862	$10,189	$8,146
Hereford	131	1,382	670	104	1,159	778	123	1,941	806	102	1,783	671
Holstein	125	1,180	502	137	1,690	726	184	2,284	883	82	1,718	435
Devon	164	1,933	598	151	2,066	931	183	2,759	921	35	935	136
Ayrshire	73	1,285	495	122	1,693	590	176	1,816	676	48	776	165
Jersey	456	2,792	1,439	324	2,820	1,467	754	3,582	2,135	340	2,900	1,364
HORSES—												
Thoroughbred	662	4,382	2,253	358	3,815	2,208	900	4,929	2,818	293	3,097	1,403
Roadster	1,488	7,855	6,353	1,423	7,319	6,086	2,046	6,737	5,481	1,638	7,166	6,116
Norman and French Draft	644	3,364	2,360	540	2,686	1,238	1,099	3,965	2,587	537	2,531	1,457
Clydesdale and English Draft	249	1,532	1,138	357	1,199	885	602	2,571	1,947	338	2,071	1,277
SHEEP—												
Cotswold	462	959	744	397	978	722	582	1,132	1,023	259	696	567
Leicester and other long wool	477	1,301	883	479	1,075	798	873	1,805	1,507	602	1,385	1,060
Southdown	354	1,017	844	349	1,204	740	517	1,442	1,108	277	1,050	683
Oxford and other downs							165	486	424	177	420	262
American Merino	106	421	339	175	556	415	418	880	677	135	408	322
Spanish Merino and other fine wool	416	1,203	875	291	869	594	496	1,365	954	280	885	602
SWINE—												
Berkshire	1,650	4,019	3,018	1,352	3,927	2,826	1,399	4,410	3,425	776	2,615	1,836
Poland China	2,068	3,649	3,065	1,752	3,672	2,703	1,955	4,222	3,669	1,007	2,870	2,108
Chester White	537	2,339	1,420	604	2,197	1,437	588	2,674	1,743	279	1,718	709
Essex	147	602	528	116	769	450	136	881	573	52	456	103
Suffolk							71	516	231	41	267	137
Small Yorkshire							72	323	313	23	109	43

ENTRIES OF CATTLE.

The following table gives the per cent. of entries of the various breeds of cattle at the fairs held in the State the past five years:

	1877.	1878.	1879.	1880.
Shorthorn, per cent	70	70	64	75
Hereford, "	4	4	3	4
Devon, "	6	6	5	3
Holstein, "	4	5	5	2
Ayrshire, "	2	4	4	2
Jersey, "	14	11	19	14

ENTRIES OF HORSES.

There was a larger number of roadster horses exhibited at the Illinois fairs in 1880 than usual.

The following table shows that the entries of thoroughbred and heavy draft horses were not as large proportionately the past year as heretofore.

	1877.	1878.	1879.	1880.
Thoroughbred, per cent	22	14	20	11
Roadster, per cent	48	53	44	58
Norman and French Draft, per cent	22	20	23	19
Clydesdale and English Draft, per cent	8	13	13	12

PERSONAL.

In submitting this my sixth annual report, I will take the occasion to express my sincere thanks to each member of the Board for the many personal courtesies received, and for the wise counsel, ready and cheerful assistance often afforded me in the discharge of my official duties. In conclusion, I desire to make special mention of valuable services of my chief assistant, Mr. Charles F. Mills, who has performed the duties assigned him with fidelity and ability.

Respectfully submitted.

S. D. FISHER, *Secretary.*

INDEX.

PAGE.

Additions to Agricultural Museum during the year 1880 189
Adulteration of butter, resolution relating to 205
Acknowledgments for varieties of grains, etc 194
Afterbirth in the cow, retention of—paper by Dr. Paaren 412
Agricultural Fairs in Illinois 1880, table of entries, premiums offered, premiums paid by each association 281
Agricultural Fairs in Illinois 1880, tabular exhibit by counties 285
Agricultural Fairs in Illinois 1880, financial exhibit by counties 294
Agricultural library—list of books 194

Agricultural statistics for 1879, as returned by assessors 1880—
- Corn, winter wheat, spring wheat 315
- Oats, rye, barley 317
- Timothy meadow, clover meadow, Hungarian and millet 319
- Buckwheat, castor beans, beans, peas 321
- Irish potatoes, sweet potatoes, turnips, and other root crops 323
- Hemp, cotton, flax 325
- Tobacco, broom corn, sorgho, other crops 327
- Apple orchards, peach orchards, pear orchards, vineyards, fruits and berries 329
- Timothy seed, clover seed, Hungarian and millet seed, cotton seed, flax seed, grapes 331
- Pastures, woodland, uncultivated land, city and town real estate 333
- Fat sheep sold, sheep killed by dogs, wool 335
- Cows, butter, cheese, cream, milk 337
- Fat hogs sold, hogs and pigs died of cholera, horses 339

Agricultural statistics as returned by assessors—tabular statement 472
Amphitheatre and show ring 222
Answers by counties relative to permanent location of State Fair 201
Annual report, Fat Stock Show 69
Annual report of T. J. Burrill, botanist 433
Annual session of the Board at Springfield, 1881 184
Appointment of committees by the President for duties at the winter meeting 205
Arrangements, Illinois State Fair 184
Arrangements, Fat Stock Show 186
Auditing committee, report 238
Awarding committees, Fat Stock Show 73
Awarding committees of Fat Stock Show, reports of 101

Awards at State Fair—
- Class A—Cattle 9
- Class B—Horses 17
- Class C—Sheep 25
- Class D—Swine 29
- Class E—Poultry 33
- Class F—Mechanics—Section 1 38
- Class F—Mechanics—Section 2 39
- Class G—Farm products 40
- Class H—Horticulture and Floriculture—Section 1 45
- Class H—Horticulture, etc.—Section 2 49
- Class I—Fine and Liberal Arts 51
- Class K—Textile Fabrics 54
- Class L—Natural History 60
- Class M—Speed 61
- Class N—Education 62

Awards, miscellaneous 229
Awards, Fat Stock Show, list of 147

Barley—Amount produced, cost of production, etc.—table of statistics by counties 558
Beef cattle—number marketed, value, etc 577
Breeding of animals exhibited at Fat Stock Show 76
British Agricultural societies and shows, by Prof. G. E. Morrow 595

PAGE.
Canada thistle reports.... 590
Catalogue of stock exhibited, Fat Stock Show.... 119

Cane-Growers' and Sugar-Makers' Association—
Address of the President.... 402
Address of Gov. Cullom.... 403

Annual meeting.... 402
Essay by C. M. Schwarz.... 404
Members of the association, list of.... 407
Officers elected.... 401

Committees appointed by the President—
Complete arrangements for Fat Stock Show.... 3
For duties at winter meeting.... 205
Committee on crop and live stock statistics, report of.... 445
Committees, Fat Stock Show, list of.... 70
Committee on measurement, Fat Stock Show.... 75

Communications from—
Joseph Watts.... 4
J. H. Graves.... 67

Convention of delegates—
Committee on credentials.... 5
Fisher, S. D., made secretary.... 5
List of delegates.... 6
List of vice-presidents.... 8
Pickrell, Hon. J. H., elected chairman.... 5
Report of committee on credentials.... 6
Scott, James R., elected president.... 7
Corn and wheat, acreage of.... 483, 540
Counties, answers by, relative to permanent location of State Fair.... 201
Crop correspondents, post office addresses of.... 488

Crop prospects, reports returned to the department, 1880—
May 1.... 447
June 1.... 448
July 1.... 458
August 2.... 462
December 31.... 474
Delegate Convention on fair grounds, 1880.... 5
Diagram of tile drained farm.... 227
Displays of grains, seeds, vegetables, dairy products, etc.... 228
Distribution of entries and premiums.... 180

Election Illinois State Board of Agriculture.... 5
Erroneous entry of steer at Fat Stock Show, 1879, by J. H. Graves.... 66, 67
Esteem and appreciation of retiring members.... 233
Exhibitors at Fat Stock Show.... 71
Experiments at Illinois University.... 409

Failure of local committee to complete arrangements for State Fair.... 236
Fair associations—Capital stock, real estate, value of improvements, 1880.... 297
Farm crops in 1880 compared with 1879—table of statistics by counties.... 567
Farm drainage.... 481
Farm products, prices of.... 481
Fat cattle.... 484
Fat hogs.... 485
Fat sheep.... 486
Fat Stock show, financial exhibit for 1880.... 279
Fat Stock Show, report of exhibition for 1880.... 280

Fat Stock Show—
Annual report.... 69
Awarding committees.... 73
Awards, list of.... 147
Breeding of animals exhibited.... 76
Catalogue of stock exhibited.... 119
Committees, list of.... 70
Committee on measurements.... 75
Distribution of entries and premiums.... 180
Exhibitors.... 71
Fat poultry and dairy products—table of entries.... 183
List of superintendents of departments.... 70
List of vice-presidents.... 70
Measurements, etc., table of.... 88
Officers of.... 70
Qualification of judges.... 72
Reports of awarding committees.... 101
Roll of honor—tabular statement exhibited in 1878, 1879 and 1880.... 175
Sales of cattle, prices obtained, etc.... 182
Secretary's report.... 154
Table of entries of cattle exhibited, 1878, 1879 and 1880.... 177
Table of entries of sheep exhibited, 1878, 1879 and 1880.... 178

PAGE.
Table of entries of swine exhibited, 1878, 1879 and 1880 179
Total number of entries and premiums paid for 1878, 1879 and 1880 181
'lax, amount produced, cost of production, etc.—table of statistics by counties 560
'orage department 223
'ruit—wax casts of, received at museum 193

rains, seeds, etc., received at museum 193
raves, J. H., communication from 67

lay, amount produced, cost of production, etc.—table of statistics by counties 553
log cholera 485
log product, 1880—table of statistics by counties 575
log cholera, 1880—table of statistics 583
lorticultural display 228
lygrometer, directions for preparing 522

llinois Agricultural Fairs, 1880—table of entries, premiums offered, premiums paid by each association 281
llinois Agricultural Fairs, 1880—tabular exhibit by counties 285
llinois Agricultural Fairs, 1880—financial exhibit by counties 294
llinois Corn Growers' and Sugar Makers' Association 402

llinois crops, cost of production—table of statistics by, counties—
Corn 524
Barley 534
Flax 538
Hay 528
Oats 530
Potatoes, Irish 536
Rye 532
Wheat 526
Wheat, winter 543
Wheat, spring 546
llinois State Dairyman's Association 345
llinois State Fair—expenses of departments for the last three years 240
llinois Swine Breeders' Association 376
llinois Tile Makers' Association 391
llinois Wool Growers' Association 387
mported stock 482
nvitation to other State Boards to coöperate relative to crop and stock reports 4

ibrary—report of committee on 194
ist of awards, Fat Stock Show 147
ist of books in Agricultural Library 194
ocation of State Fair—report of committee 200
ocating State Fair for longer period than two years 224

leasurements at Fat Stock Show—table of 88

leetings of the Board—
During the Fair, Leland Hotel, Springfield 1, 2, 3
During Fat Stock Show, Exposition Building, Chicago 65, 66
Winter meeting, 1881—annual session, Springfield 184
leteorological observations—summary of for 1878 517
leteorological observations—summary of for 1880 ..... 519, 521

leteorological observations—tabular statements 1880—
January 493
February 495
March 497
April 499
May 501
June 503
July 505
August 507
September 509
October 591
November 513
December 515
liller, T. L.—protest of 66
lilk as an article of food—paper by George P. Lord 369
linutes of the committee of arrangements 185
liscellaneous awards—report of committee 229

)ats—amount produced, yield per acre, etc.—table of statistics by counties 561
)fficers of Fat Stock Show 70
)rchards—total value, 1880—acreage 1879 returned by assessors—table of statistics by counties 550

'aper by George P. Lord 369
'aper by McD. Richards 363

PAGE.
Paper by R. M. Patrick 365
Paper by Mrs. F. S. Bosworth 371
Paper by J. R. Kemp 339
Paper by C. C. Buell 366
Paper by Phil. M. Springer 379
Paris Universal Exhibition, 1878 597
Pastures—total value 1880—acreage 1879 returned by assessors—table of statistics by counties 561
Periodicals received at the office during the year 196
Potatoes, Irish—amount produced, cost of production, etc.—table of statistics by counties 563
President's report—special 233
President Scott's report on failure of local committee to complete arrangements for Fair 236
Premiums offered on speed 2
Protest of S. G. Wagener, presented at special session during the Fair 3
Protest of T. L. Miller, received by the Board during Fat Stock Show 66
Pure-bred stock exhibited at Illinois Agricultural Fairs, 1880 300

Qualification of judges 72

Railroad arrangements for State Fair and Fat Stock Show, 1880 198
Report of awarding committees at Fat Stock Show 101

Reports from County Agricultural Boards—
Adams county 242
Boone county 242
Brown county 243
Bureau county 243
Carroll county 243
Cass county 244
Champaign county 244
Clark county 244
Coles county 245
Crawford county 245
Cumberland county 246
DeKalb county—Sycamore Branch 246
DeKalb county—DeKalb Branch 246
DeKalb county—Sandwich Branch 247
DeWitt county 247
Douglas county 247
DuPage county 248
Edgar county 248
Edwards county 249
Effingham county 249
Fayette county 249
Ford county 250
Franklin county 250
Fulton county—Canton Branch 251
Fulton county—Avon Branch 251
Gallatin county 252
Greene county 252
Hamilton county 253
Hardin county 253
Henderson county 254
Henry county 254
Iroquois county—Onarga Branch 255
Iroquois county—Watseka Branch 255
Jackson county 255
Jasper county 256
Jefferson county 256
Jersey county 256
JoDaviess county—Galena 257
JoDaviess county—Warren 257
Kane county—Elgin 258
Kankakee county 258
Kendall county 258
Knox county—Knoxville 259
Lake county—Libertyville 259
Lake county—Waukegan 260
LaSalle county 260
Lawrence county 261
Livingston county—Fairbury 261
Logan county—Lincoln 261
Logan county—Atlanta 262
Macon county 262
Macoupin county 262
Mason county 263
Massac county 263
McDonough county—Macomb 263
McHenry county—Woodstock 264
McHenry county—Marengo 264
McLean county 264

PAGE.
Menard county 265
Mercer county 265
Morgan county 265
Moultrie county 266
Ogle county—Oregon 266
Ogle county—Rochelle 267
Perry county 267
Platt county 267
Pike county 268
Pope county 268
Randolph county—Sparta 269
Randolph county—Chester 269
Richland county 270
Rock Island county—Port Byron 270
Sangamon county 271
Schuyler county 271
Shelby county 272
Stark county 272
St. Clair county 272
Tazewell county 273
Union county 273
Vermilion county—Catlin 273
Vermilion county—Danville 274
Vermilion county—Hoopeston 274
Wayne county 274
White county 275
Whiteside county—Sterling 275
Whiteside county—Morrison 275
Whiteside county—Albany 276
Will county 276
Williamson county 277
Winnebago county 277
Woodford county 278
eport of committee on crop and live stock statistics 445
eports of superintendents at Fat Stock Show 231
eport—second annual, by T. J. Burrill, botanist 433
eport of pure bred stock exhibited at Illinois agricultural fairs, 1880 300
eport of President Scott on failure of local committee to complete arrangements for State Fair 236

eports of committees at the winter meeting, 1881—
Arrangements Illinois State Fair 184
Arrangements for Fat Stock Show 186
Auditing 238
Displays of grains, seeds, vegetables, dairy products, etc 228
Failure of local committee to complete arrangements for State Fair 236
Farm drainage 225
Finance 241
Horticultural display 228
Library 194
Location of State Fair 200
Miscellaneous awards 229
Museum 188
Printing 187
Reception 186
Road making 225
Special on silver plate 200
Subscription to Fat Stock Show 199
Transportation 197

eports of superintendents of departments—fair 1880—
Class A—Cattle 205
Class B—Horses 208
Class C—Sheep 210
Class D—Swine 212
Class E—Poultry 213
Class F—Mechanic Arts—Section 1 214
Class F—Mechanic Arts—Section 2 214
Class G—Farm Products 218
Class H—Horticulture—Section 1 218
Class H—Horticulture—Section 2 219
Class I—Fine Arts 219
Class K—Textile Fabrics 220
Class L—Natural History 220
Class M—Speed 221
Class N—Education 222
Amphitheatre and show ring 222
Forage department 223

esolutions adopted at meetings of the State Board relating to—
Adulteration of butter 205
Erroneous entry of steer at Fat Stock Show in 1879, by J. H. Graves 66, 67
Esteem and appreciation of, to retiring members 233
Locating State Fair for a longer period than two years 224
Provide delegates to the convention with meal tickets 2

PAGE

Resolutions adopted by county agricultural boards relative to permanent location of State Fair
Retention of afterbirth in the cow—paper by Dr. N. H. Paaren
Roll of honor—tabular statement exhibited at Fat Stock Shows 1878, 1879 and 1880
Rye—amount produced, cost of production, etc.—table of statistics by counties

Sales of cattle at Fat Stock Show—prices obtained, etc.
Sheep killed by dogs
Secretary's report—Fat Stock Show

Secretary's report—
- Amount of premiums offered by the Illinois State Fair, 1853-1880
- Annual report
- Capital stock, property, etc.
- Distribution of premiums
- Entries, offerings and awards
- Entries of cattle and horses
- Fat Stock Show
- Finances
- Financial exhibits—Illinois State Fairs, 1876-1880
- Illinois fairs—total number of entries and awards, 1876-1880
- Library
- Mixed husbandry
- Museum
- Personal
- Pure-bred stock
- Receipts and expenses—State Fair
- Work of the department

Sorghum—remarks by Prof. H. A. Weber
State Fair—financial exhibit for 1880
State Fair—report of exhibition for 1880
State Fair, location of—report of committee
Statement of John McGinnis
Statistics, agricultural, for 1879, as returned by assessors, 1880

State Dairymen's Association—
- Address of welcome
- Address of R. P. McGlincy
- Annual address of the President
- Annual meeting
- Members of
- Milkmaids, by Mrs. Frank Crosby
- Officers of
- Paper by Isaac Boies
- Paper by George P. Lord
- Paper by R. M. Patrick
- Paper by Thomas McD. Richards
- Paper by C. C. Buell
- Paper by Mrs. F. S. Bosworth
- Past and future of the Elgin Board of Trade, by R. P. McGlincy
- Resolution of respect to the memory of Mr. Keating, deceased
- Secretary's report
- Speech of Frank Crosby
- Table of monthly sales
- Treasurer's report

Sorghum—value of product, amount produced, etc.—table of statistics by counties
Statute to be enforced during the fair relative to the sale of liquors
Stock—report of pure-bred, exhibited at Illinois Agricultural Fairs, 1880
Special sessions of the board
Special orders
Special report of the President

Swine Breeders' Association—
- American pork products—table of statistics
- Annual meeting, 1880
- Executive committee
- Hog cholera—paper by Ezra Stetson, M.D.
- Officers elected for ensuing two years
- Judging swine at fairs—paper by Phil. M. Springer
- Resolution of thanks to Messrs. Springer and Stetson
- Resolution requesting the State Board of Agriculture to employ experts to pass on swine at State Fair

Tile-drained farm, diagram of

Tile Makers' Association—
- Amendment to the constitution
- Committee on programme for next annual meeting
- Manufacture and burning drain tile—paper by J. R. Kemp
- Officers elected for the ensuing year
- Premiums for farm drainage
- Report of committee on manufacture and sale of drain tile
- Report of committee on increasing the demand for drain tile

PAGE.
Resolution relating to premiums for farm drainage 400
Treasurer's report 400
Thanks to Secretary of State Board of Agriculture for courtesies 401

easurer's report 234

lue of farm crops 480
lue of farm products, etc., 1880—table of statistics 588
lue of live stock 487
lue of live stock marketed 581

agener, S. G., protest of 3
atts, Joseph, communication from 4

eber, Prof. H. A.—general remarks on sorghum 417
Analyses and experiments in sugar-making 424
Examination of canes for sugar 424
Experiments in sugar-making 428
General conclusions 431
Results of experiments 425

heat—amount raised and quantity consumed 543
inter meeting—annual session, 1881—
Additions to Agricultural Museum in 1880, list of 189
Adulterated butter, resolutions by Mr. Reynolds relative to 205
Answers by counties relative to permanent location of State Fair 201
Appointment of committees by the President for duties at winter meeting 205
Committee reports—
Arrangements Illinois State Fair 184
Auditing 238
Awards, miscellaneous 229
Displays of grains, seeds, vegetables, dairy products, etc 228
Farm drainage 225
Fat Stock Show arrangements 186
Fat Stock Show, subscriptions to 199
Finance 241
Horticultural display 228
Library 194
Location of State Fair 200
Miscellaneous awards 229
Museum 188
Printing 187
Reception 186
Road-making 225
Silver plate 200
Transportation 197

Minutes of the committee of arrangements—report of committee 185
Railroad arrangements—State Fair and Fat Stock Show, 1880 198

Reports of superintendents of departments—State Fair—
Class A—Cattle 205
Class B—Horses 208
Class C—Sheep 210
Class D—Swine 212
Class E—Poultry 213
Class F—Mechanic Arts—Section 1 214
Class F—Mechanic Arts—Section 2 214
Class G—Farm products 218
Class H—Horticulture—Section 1 218
Class H—Horticulture—Section 2 219
Class I—Fine Arts 219
Class K—Textile Fabrics 220
Class L—Natural History 220
Class M—Speed 221
Class N—Education 222
Amphitheatre and show ring 222
Forage department 223

Reports of superintendents—Fat Stock Show 231
Resolutions adopted by county agricultural boards relative to permanent location of State Fair 203
Resolution of Mr. Reynolds relative to adulterated butter 205
Resolution by Mr. Washburn relative to locating State Fair 224
Resolution of esteem to retiring members 233
Special order for consideration of permanent location of State Fair 204, 205
Special report of the President 233
Statement of John McGinnis relative to tile-drained farm 226

ool Growers' Association—
Annual meeting, 1880 387
Silver cups offered as premiums 388
Subscriptions to silver cup fund 388

TENTH REPORT

OF THE

STATE ENTOMOLOGIST

(Walsh, 1; LeBaron, 4; Thomas, 5.)

ON THE

NOXIOUS AND BENEFICIAL INSECTS

OF THE

STATE OF ILLINOIS.

FIFTH ANNUAL REPORT

BY CYRUS THOMAS, PH. D.,
State Entomologist.

SPRINGFIELD:
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1881.

TABLE OF CONTENTS.

PAGE.

able of contents III
ist of illustrations V
etter of transmittal 1-4
rmy worm 5-43
Its past history 6
Natural history and description 7
Eggs 9
Larva 12
Pupa and moth 18
Term of life 20
Number of broods and hibernation 27
Proper home of the species and seasons most favorable to its development 33
Remedial agencies 36
Natural 36
Artificial 42
ew corn-insect 44
elation of Meteorological conditions to Insect development 47-59
escriptive Catalogue of Larvæ 60-140
Saw-flies (Tenthredinidæ) 63
List of plants injured by Larvæ of Saw-flies 65
Urocerida (Horn-tails) 70
Lepidoptera (Descriptive list of Larvæ) 72-140
Larvæ of Butterflies 73-98
Papilionidæ 73
Pieridæ 76
Danaidæ 79
Nymphalidæ 80
Satyridæ 90
Sphingidæ, or Hawk moths 96-105
Ægeridæ, or Borers 106-109
Zygænidæ 110-112
Bombycidæ, or Spinners 113-128
Noctuidæ, or Owlet moths 128-140
arvæ of Lepidoptera, by D. W. Coquillett 145
Section II 145
Analytical Key to groups of Section II 146
Group I 147
Group II 150
Group III 152
Group IV 156
Group V 157
Group VI 160
Group VII 165
Group VIII 167
Group IX 171
Group X 174
Group XI 179
Group XII 181
Group XIII 183
Group XIV 185
ie Hessian-fly, by Dr. A. S. Packard, Jr. 187-232
Introduction 193
Losses occasioned by 194
Description 200
Habits 202
Effect of the worm on wheat 206
Influence of climate on 209
Parasites 209
Remedies 213
Special remedies 223
Periodicity 225
Distribution 229
Summary 231

LIST OF ILLUSTRATIONS.

GURE.		PAGE.
...	Army-worm moth (Leucania unipuncta	5
...	tip of abdomen	9
...	Army-worm (Larva of L. unipuncta)	12
...	(Pupa)	18
...	Microgaster militaris	38
...	Papilio philenor—larva	73
...	Pieris protodice (Southern Cabbage-butterfly), butterfly	76
...	larva	76
...	Pieris oleracea (Turnip-butterfly) butterfly and larva	77
..	Pieris rapæ (European Cabbage-butterfly), male	77
...	female	77
...	larva and chrysalis	77
...	Danais archippus—larva	79
...	Limenitis dissippus—larva, pupa and work	89
...	Apatura herse—butterfly, pupa, larva and eggs	89
...	Paphia glycerium—pupa, larva and work	89
...	Thyreus abbottii—moth and larva	100
...	Deilephile lineata—larva	100
...	Philampelus pandorus—larva	101
...	achemon—larva	101
...	Chærocampa pampinatrix—larva	103
...	Ægeria acorni—moth, pupa, larva and work	108
...	Alypia octomaculata—moth and larva	110
...	Psycomorpha epimenis—larva	111
...	Eudryas Grata—larva and eggs	111
...	Callimorpha fulvicosta—larva enlarged	114
...	moth, larva and sections	114
...	Arctia isabella—moth, pupa and larva	115
...	Hyphantria textor—moth, pupa and larva	116
...	Orgya leucostigma—moth	117
...	larva	117
...	Thyridopterix ephmeræformis—moth, pupa, larva, case and eggs	118
...	Datana ministra—moth, larva and eggs	119
...	Dryocampa rubicunda—moth, pupa and larva	121
...	Clisiocampa americana—pupa, larva and eggs	122
...	sylvatica—larva	123
...	Actius luna—larva	124
...	Attacus prometheus—larva	125
...	Attacus (Samia) cecropia—larva	126
...	Hyperchiria io—larva	127
...	Eucronia maia—pupa and larva	125
...	Apetela lepusculina—larva	130
...	(Acronycta) oblinata—moth, pupa and larva	131
...	Agrotis subgothica—moth	132
...	messoria—moth and larva	134
...	ypsilon—moth	134
...	Mamestra renigera—moth and larva	137
...	Laphygma frugiperda (Fall army-worm) larva	138
...	Plusia brassicæ—moth, pupa and larva	149
...	Anisopterix pometaria—moths, pupa, larva and eggs	148
...	Heliothis armigera—moth, pupa, larva and eggs	150
...	Carpocapsa pomonella—moth, pupa, larva and work	151
...	Gortyna nitela—moth and larva	151
...	Hyphantria textor—(same as fig. 29)	154
...	Clisiocampa americana (same as fig. 35)	155
...	Acrobasis nebulo—wings of moth, and case	157
...	Deilephila lineata (same as fig. 18)	159
...	Danais archippus (same as fig. 13)	161
...	Limenitis dissipus (same as fig. 14)	162
...	Eucromia maia (same as fig. 41)	163
...	Papilio philenor (same as fig. 6)	164
...	Orgyia leucostigma (same as fig. 31)	166
...	Datana ministra (same as fig. 33)	167

FIGURE. PAGE.
64....Hyperchiria io (same as fig. 40)....
65....Pyrrarctia (Arctia) isabella (same as fig. 28)....
66....Acronycta oblinata (same as fig. 43)....
67....Psychomorpha epimenis (same as fig. 24)....
68....Alypia octomaculata (same as fig. 23)....
69....Eudryas Grata (same as fig. 25)....
70....Philampelus pandorus (same as fig. 19)....
71....Attacus (Callosamia) prometheus (same as fig. 38)....
72....Attacus (Samia) cecropia (same as fig. 39)....
73....Actias luna (same as fig. 37)....
74....Larva and pupa of Pieris protodice (same as fig. 8)....
75....Pieris rapæ—larva (same as fig. 12)....
76....Pyrophila pyramidoides—moth....
77.... larva....
78....Philampelus achemon (same as fig. 20)....
79....Ceramica picta—moth and larva....

Full-page cut—Rainfall and Temperature Curves....

Plate I....Hessian-fly and its transformations....
II....Transformations of the Hessian-fly....

Of the foregoing cuts the following are from electrotypes purchased from Prof. C. V. Riley for this Report: Figs. 2, 6, 9, 12, 15-25, 28, 29, 34-43, 49 and 51.

Of Plates I and II, the electrotypes were obtained by purchase from the Government Printing Bureau.

The electrotype for the full-page cut was kindly loaned by the "Farmers' Review Co." of Chicago.

LETTER OF TRANSMITTAL.

CARBONDALE, ILL., December 30, 1880.

Hon. James R. Scott, President of the State Board of Agriculture:

In compliance with the second section of the Act of the Legislature of Illinois, entitled "An act in relation to the State Board of Agriculture," approved May 25, 1877, I have the honor of presenting herewith my "Fifth Annual Report, as State Entomologist, on the Noxious and Beneficial Insects of the State of Illinois."

This will form the tenth of the series of reports by the State Entomologist, viz: one by Mr. Walsh, four by Dr. LeBaron, and five by the present incumbent. The title, therefore, will be as follows: "*Tenth Report of the State Entomologist, on the Noxious and Beneficial Insects of the State of Illinois,*" according to the plan heretofore adopted.

I am glad to inform you that the demand for these reports is steadily on the increase, not only in our own State, but from others outside of our own State. The outside demand has in fact increased to such an extent that the few copies (200) bound separately, and allowed me for distribution, are not sufficient to supply the demand and retain such as are necessary for exchanges, societies and specialists.

I have received a number of requests for them from Europe, and very flattering notices of them have been returned by those receiving them.

Aware of the fact that our farmers and horticulturists generally meet with injurious insects when they are in the larval or worm shape, and hence experience great difficulty in determining species, which are usually described and referred to in their perfect shape, I have devoted a large portion of the present report to descriptions of larvæ. Although limiting myself to such species as are found in Illinois, and a few others injurious to commonly cultivated plants, and which will therefore probably be met with here, I have been able to notice but two orders—the *Lepidoptera* and *Hymenoptera*—for the present report.

In the preparation of this part of the work, I have been very greatly aided by Mr. Coquillet, whose contribution, although duplicating a small portion of the report, is inserted as furnished by him, as it was impossible to omit these portions without leaving out some additional information. I am also under obligations to Miss Nettie Middleton and Mr. John Marten, who have prepared articles

on the larvæ of some of the groups, as will be seen by reference to the descriptive catalogue of larvæ.

In order to render this practically useful, I have avoided, as far as possible, technical language, have made use of the most prominent and easily understood characters in descriptions; have referred, as far as possible, to the more easily observed habits, to the plants and parts of plants to which their injuries are confined. To aid in determining species, I have not only prepared synoptical tables in plain language, but have given a list of plants, with the names of species preying on them.

You will see from this that my object has been to make this report useful even to the most unscientific farmer. Some technical terms have been retained, because it is impossible to be exact and entirely dispense with them; but most if not all of these are explained.

There may be a disposition on the part of some to complain that in this part of my report I have limited myself too strictly to descriptions of the larvæ, where fuller statements in reference to the history and habits would have been more interesting. Had I attempted this, the chief object in view—to give as complete synopsis of injurious insects found in Illinois as possible—would have been defeated, as the space allowed me would have been wholly insufficient. I had, therefore, to carry out my plan as I have done, or else wholly abandon it, which I did not wish to do, as the work is one greatly needed.

Believing it important to devote attention each year to one or more of the notedly injurious species, as circumstances may favor further study of them, I have adopted this plan for the past three years, and continued it the present year. Thus, a considerable portion of my second report is devoted to a discussion of the history, habits, characters of, and best remedies for the Chinch-bug; my third is devoted entirely to the Plant-lice, which at times develop in such vast numbers as to become very injurious; my fourth contains a lengthy discussion of the characteristics, history, habits of, etc., and remedies for the European Cabbage-worm.

In the report now presented I have discussed at considerable length some of the more important points in the history and habits of the Army-worm, with a view of arriving at the best practical remedy. The appearance of this species in vast numbers during the past summer, in the regions of Long Island Sound, brought it into prominent notice, and drew from two of our leading entomologists articles in reference to it.

The habits and characters of this species were very fully discussed by Mr. Walsh and myself in the Prairie Farmer in 1861, and Mr. Walsh's first report devotes a long article to the species; but these are not now obtainable; in fact, the recent articles just referred to apparently overlook these discussions and the facts then made known. On this account, and because of the importance of the subject, and the data obtained since 1861 in reference to the species, I selected it as one of the most notedly injurious insects to receive attention during the past year.

The relations of climatic conditions to the development of injurious insects is a question to which I have devoted considerable attention the past year.

It is impossible to advance but few steps in the careful study of the habits of any widely distributed species, without encountering the climatic factor. In my study of the Chinch-bug this presented itself so prominently that I determined to examine more carefully and thoroughly than had been heretofore done, the relation of meteorological conditions to the development of the species. This necessitated an examination of all the meteorological records of our State, and of the eastern portions of Missouri and Iowa. As will be seen by reference to the accompanying report, I have shown the result in curved lines, thus forming a graphic representation by means of which the eye can readily observe the more prominent points. The series used extends from 1840 to 1878; and if the facts developed by an examination of this series are to be a guide, the year 1881 will be dry over a large portion of our State, and hence a short crop year so far as corn and the later crops are concerned. I do not wish to be understood as giving an opinion to this effect, but as simply stating that the facts developed by an examination of the series indicate this. So far as the temperature is concerned, no rule appears by which any indications of the future can be ascertained. According to the rain curve and the history of the Chinch-bug in the past, next year will be a Chinch-bug year, if the season is above the average temperature. This subject of climatic influence is so important that I have ventured some suggestions on points which, I think, have been overlooked in its discussion.

By the permission of Dr. A. S. Packard, I am allowed to insert in my present report his paper on the Hessian-fly. I have added some notes where I disagree with the conclusions of the author—where I think his language needs elucidating, and where I think it necessary to note some additional fact or thought; but I have not attempted any change in the author's language.

I had intended to discuss somewhat fully in this report the general subject of remedies, but have not been able as yet to complete this paper; possibly, if the printing of the report is delayed, I may yet have it ready in time to be inserted.

I can state here that one of the general conclusions at which I arrive is, that, as a general rule, topical applications are really of but little value except in the garden, greenhouse and orchard. The time, expense and injury to the crop by the insects and substance applied generally equal or overbalance the benefit, even when it drives away or destroys the pest. Preventive measures, therefore, are the ones to be chiefly relied upon for the protection of field crops.

During the year some additional boxes of insects have been furnished the Museum of the State Agricultural Department, which have been put in their proper places by your curator, Miss Bradford.

My first installment to the Industrial University was forwarded during the year to Prof. Burrill.

In November about 2,600 duplicate specimens were forwarded to Prof. Forbes, with the understanding that he would, from these and

his own collection, make up as complete a series as possible for the Industrial University. It was thought, after consultation with him, that in this way our collections could be made more useful to the State than in any other way. Not only would the University, by this method, receive more species than from the one collection, but the other duplicates can thus be used for the benefit of other institutions and schools. The offer made to me by Prof. Forbes was very acceptable, and I therefore gladly availed myself of it. I retained a full series for the use of the Agricultural Museum of such species as have not already been sent.

In closing, allow me to tender my thanks to the Governor and various State officers, and officers of your Board, for favors received. I am under renewed obligations to Hon. S. D. Fisher and Col. C. F. Mills for the use of books and various other favors; also, to Prof. S. A. Forbes, Prof. G. H. French, D. W. Coquillet and Miss Bradford, for specimens of insects, and other assistance; to Mr. Coquillet, also, for a very valuable paper on insect larvæ, which is inserted in this report. Also, to Miss Nettie Middleton, for efficient aid as my assistant.

To the Illinois Central Railroad Company I am under obligations for an annual pass over their roads.

Very respectfully,

CYRUS THOMAS,

State Entomologist.

THE ARMY WORM.

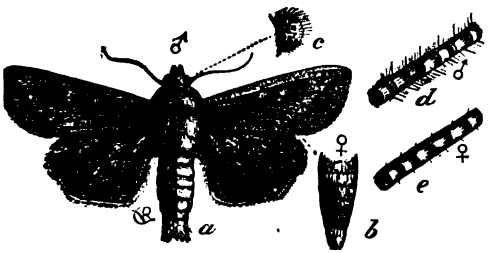

FIG. 1.—Army Worm Moth. Leucania unipuncta.

So much has already been written in reference to this insect that it may appear superfluous to add anything at this time to the literature of the subject. But the earlier articles, brought out chiefly by its appearance in such vast numbers in 1861, are contained mostly in periodicals, and are not only inaccessible to the people, but appear to have been almost entirely overlooked by those who have written more recently upon the subject. For this reason, and the fact that it occasionally proves very injurious in Illinois, I have concluded to devote an article in this report to its history, habits and description, together with such suggestions as to remedial measures as I deem of most importance.

As there are yet, and have been since the study of the species commenced, in 1861, radical differences of opinion among entomologists in reference to certain points in its life history, I have thought it best to review, somewhat at length, these different opinions, correcting them where subsequent investigations have shown them to be clearly erroneous, and discussing those in regard to which there are yet different views, or that are yet in doubt.

That much is yet to be learned in reference to it, is apparent from the fact that the number of broods in the different latitudes in which it is found is still a subject of doubt and discussion; the method of hibernating in these different sections is still unascertained with anything like satisfactory certainty; the conditions necessary to and causes of its occasional development in such vast armies have not been satisfactorily determined; and lastly, we may add that the cause of its marching at times when, as is now known, its normal habits are those of an ordinery cut-worm, is yet a mystery.

It is true, speculation in reference to these points has been freely indulged in, and theories apparently satisfactory to the authors advanced, but these are still theories, and not demonstrated facts. I do not flatter myself with the hope that I shall be able, at this time, to settle conclusively the disputed points of the insect's life history, or that the additional facts I herewith present will dispel the mystery surrounding it. The most I expect to be able to accomplish is, by bringing together, in a condensed form, the facts ascertained in reference to the species up to the present time, and the

various theories advanced, to eliminate the conclusions heretofore arrived at that are clearly erroneous, to point out the direction in which investigation is needed, and from the facts that are satisfactorily determined, to suggest such remedial or preventive measures as appear to offer the greatest hope of success.

A very excellent article on the species was given by Mr. B. D. Walsh in his first report as acting State Entomologist, the only one that appears in the entire series of State Entomological Reports. Unfortunately, copies of this report are very scarce, and much of the article is of a controversial nature not adapted to practical purposes, and devoted to the advocacy of views in reference to the species which subsequent investigations have shown to be erroneous.

A mere mention of the species is made in my second report, in the brief synopsis of our Lepidoptera prepared by Prof. French, but nothing further.

This insect has heretofore been looked upon, in Economic Entomology, much as the comet in Astronomy, an unheralded visitor, whose coming could not be predicted, and whose disappearance was equally as mysterious. Although its history is not yet thoroughly known and its relation to climatic conditions not thoroughly understood, yet item after item is being added, so that we may hope that ere long its entire history will be so thoroughly understood that the entomologist may be able to give timely warning of its coming. To this point we will again call attention hereafter, when we come to speak of remedial measures.

Although always present with us in some form, as eggs, worms, chrysalides or moths, yet, in ordinary years, in such small numbers that the injury they do is so slight that it does not attract attention, and hence they are unnoticed except by entomologists who know when and where to look for them. Another fact, which will hereafter be more especially noted, that is calculated to deceive unscientific observers, and even entomologists not acquainted with their habits is, that normally they are "Cut-worms," and not "Army-worms," appearing in the latter role only in years when favorable conditions have developed them in great numbers. Hence, in speaking of the "appearance" of the species, we allude to its appearance in unusual numbers and in its character as a true "Army-worm."

ITS PAST HISTORY.

The following notices of the earlier dates of its appearance are taken from Dr. Fitch's article:

"In 1743 there were 'millions of devouring worms, in armies, threatening to cut off every green thing.'—Flint's 2d Report Agric. of Mass., p. 36.

"In 1770 a black worm, about an inch and a half long, devoured the grass and corn. They all moved in one direction, and when they were intercepted by furrows in ploughed land, they fell into them in such numbers as to form heaps. They sought shelter in the grass, a hot sun being fatal to them; they disappeared suddenly about the close of June and beginning of July.'—Webster on Pestilence, vol. 1, p. 259.

"Eleven years afterwards the same kind of a worm appeared again, but they were few in number."—Cultivator, 10th Aug.

"1790—Millions of the same black worm reappeared in Hartford and Norwich, Conn."

"1817—It appeared May 22d, in Worcester; also in Albany."

From 1817 until 1861 we find no further mention of its appearance in the Eastern States, but during this interval it appears to have been frequently noticed in the Western States.

The following dates given for Illinois were gathered chiefly by Mr. Walsh, from the statements of old settlers: 1818 or 1820, 1825, 1826, 1834, 1838, 1841, 1842, 1845, 1849, 1856 and 1857. The visitation in each case being local, 1818 or 1820, 1838, 1842, 1856 and 1857, to Union county; 1825, 1826, 1834, 1839, 1841 and 1842, to Perry county; 1842, 1845 and 1858, to northern counties. Mention is also made of its visiting Vermilion county in 1835, and the Okaw region in 1850.

It appears to have been noticed in Central Missouri in 1854, and Northern Ohio in 1855.

In 1861, when it reached the maximum of its development, it was observed throughout the northern and middle portion of the United States, from Maine to Kansas, and as far south as Tennessee.

According to Prof. Riley, it attracted some attention in limited localities in Illinois and Missouri, in 1865 and 1866. In 1869 it appeared in considerable numbers in Missouri, and parts of Illinois and Indiana. In 1871 it was reported in parts of Iowa and in two counties in Illinois; in 1872 it appeared in Iowa, Missouri, Wisconsin, and parts of Illinois, Ohio, Kentucky and New York. The year 1875 was one of still more general visitation; and lastly, we have to record its appearance in great numbers in New Jersey, Southern New York and Connecticut, in 1880.

I have made some examination in reference to the notices of its appearance in Illinois previous to 1861, and, although many old settlers have a distinct recollection of seeing large armies of the worms once or twice, and of extensive injury done by them to crops, yet I find the dates as given wholly unreliable. I recollect that in 1861, when they appeared in such vast numbers, that the older farmers were then fully aware of the advantage of ditching against them, and spoke of having previously adopted the same plan; but my recollection is, that it was then generally understood that 1844 had been the previous year in which they appeared in the greatest number. It will only be safe, therefore, to set down 1861, 1869, 1872 and 1875 as Army-worm years in the Northwest.

NATURAL HISTORY AND DESCRIPTION.

Notwithstanding all that has been written in reference to this species, we cannot yet claim, as heretofore remarked, and as will be seen by what is hereafter stated, that its entire life history is absolutely known. In fact, the few discoveries made since 1861 have only served to prove the correctness in great part of the conclusions I then formed, which are given in the quotation below from my article in the Prairie Farmer of June 20, 1861. It has been asserted again and again, that up to 1861 our knowledge of the Army-worm remained a blank; that is to say, no one had traced it into

any other stages of its growth. This statement has remained up to this time unchallenged, and has been received as conclusive. Justice to a faithful worker in economic entomology, who no longer lives to claim his own rights, demands that this statement be corrected. In an article prepared for the Agricultural Report of Ohio for the year 1855, Mr. J. Kirkpatrick makes the following statement:

"Last season (1855), in consequence of the heavy rains in the early part of June, the flats of the Cuyahogo were flooded. After the subsidence of the water, and while the grass was yet coated with the muddy deposit, myriads of small blackish caterpillars appeared; almost every blade had its inhabitant, no animal could feed upon it without at every bite swallowing several; if a new blade sprung up it was immediately devoured, but what was most remarkable, the insects did not attempt to remove to land a foot or two higher, but that had not been covered by the water. When nearly full grown, I removed about twenty individuals, and placed them in a well aired and glazed box, and by this means I had a very favorable opportunity to observe their habits and changes. The caterpillar, when full grown, is two inches in length, of a blackish grey, the grey being formed by whitish lines running parallel with each other the length of the body, two lateral lines, the upper having a yellowish center, the lower a red one; with 16 legs. Its method of eating is to strip the entire leaf from the midrib, and it will do so very rapidly. I supplied my specimens with different kinds of grass, all taken from high land, and they ate all, and this was the more remarkable from the non-removal of their own accord from the once flooded meadows, even when their food gave out. During the few days that I had them, their numbers rapidly decreased until only some four or five were left, and as I made minute examination of the box and found no remains, I came to the conclusion that the stronger had devoured the weaker, and yet during this whole time they had a superabundance of food that they seemed to relish. When fully grown, they entered the ground, changing to a light brown pupa; that became darker in a few days, and at the end of two weeks emerged a light brownish colored moth, with a small silvery mark in the center of the anterior wings, the posterior pair darker, edged with a lighter tint, the thorax crested; extent of wings nearly two inches, no apparent difference between the sexes and belong to the family *Noctuidae*, but I am not sure to what genus."

It is evident from what is here stated, that these worms, although not marching, were Army-worms, as the description of the moth proves, when taken in connection with what is said of the worms and chrysalis, that it was the *Leucania unipuncta*. To Mr. Kirkpatrick, therefore, belongs the credit of having first reared the species from the larval to the perfect state, though he failed to determine its specific name.

In 1861 it was traced to the perfect state by Mr. B. D. Walsh, of Rock Island, Mr. Emery, of the Prairie Farmer, Col. John Daugherty, of Jonesboro, Mr. Bartlett, of Champaign county, and myself in Illinois, and by Dr. Asa Fitch in New York. But to Dr. Fitch, as Mr. Walsh remarks, "we western 'bug hunters' are ex-

lusively obliged for disentangling the intricate synonyms of the pecies and identifying the *L. unipuncta* of Haworth with *L. extranea* f Gueneé."

THE EGGS.

Previous to 1876 no one had ascertained by actual observation, o far as I am aware, the time, place and manner of depositing he eggs, but as will be seen by the quotation I here present and he statements made by Prof. Riley, who had the good fortune to e the first to observe the female moth in the act of ovipositing the ggs, the theory formed in advance of actual observation was es- entially correct.

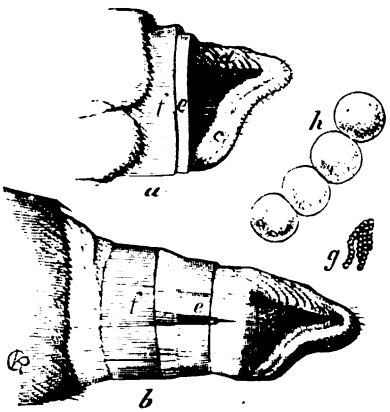

FIG. 2.—L. unipuncta. Tip of Abdomen.

In an article written by me and published in the Prairie Farmer, June 20, 1861, I state as my opinion that, "In the spring, quite early, the female moths lay their eggs on the stems of the grass, during the night time; in a few days these hatch and the larvæ, after attaining their growth, descend into the ground and change into chrysalides, that in a short time are transformed into moths which, after pairing, lay their eggs and thus produce the second brood, during the season; but this last brood, I think, is never numerous, and they only reach the pupa state, in which they pass the winter."

Mr. Walsh, in an article in the same paper, Oct. 17, 1861, states that he believes "the Army-worm eggs are laid some time in June, July or August, on the stems of the tame grass, close to the ground, and lie dormant there till the next spring."

Dr. Fitch in his sixth annual report (1861), remarks that, "it probably, like other moths which are related to it, places its eggs at the roots of the grass."

Dr. Packard, in his report to the Maine Board of Agriculture, in 1861, says: "The eggs are most probably laid near the roots of our wild grass, such as timothy and red-top."

Prof. Riley, in his second annual report (1869), remarks that the egg is evidently deposited by the parent moth at the base of perennial grass-stalks. In his eighth report (1876), after studying the form of the female ovipositor, he expressed his belief as follows: "It is my belief, therefore, that the eggs of the Army-worm are secreted, for the most part, between the sheath and stalk of its food plants, just above the joints."

Before the year had expired he had the satisfaction of observing the moth in the act of depositing her eggs, which he describes in another part of the same report as follows: "By carefully watching, I have ascertained that the favorite place to which the female consigns her eggs in such grass, is along the inner base of the terminal blades, where they are yet doubled. The compressed,

horny ovipositor, which plays with great ease and tentative motion on the two telescopic sub-joints of the abdomen, is thrust between the folded sides of the blade, and the eggs are glued along the groove in rows from five to twenty, and covered with a white, glistening adhesive fluid, which not only fastens them to each other, but draws the two sides of the grass blade close around them, so that nothing but a narrow, glistening streak is visible. I think, also, that the two edges of the grass blade are sometimes clasped by the opening hind border of the ovipositor, so as to give the insect a firmer hold, and fold the leaf more closely on the eggs.

Finding it difficult to make satisfactory observations in the field, I transferred living moths to glass cages which were furnished with blue grass sward. Here again most of the eggs were laid in the manner described, and on the green and dry blades indifferently: some were, however, thrust in between the sheath and stalk, as I had anticipated they might be, while others were thrust into the crevices on the side of the sward, which had been cut with a knife.

The female once having commenced to lay, is extremely active and busy, especially during warm nights, and I should judge that but two or three days are required to empty the ovaries, which have a uniform development. A string of 15 or 20 eggs is placed in position in two or three minutes, and by the end of ten more I have known the moth to choose another leaf and supply it with another string."

Prof. J. H. Comstock, in his report to the U. S. Agricultural Department for 1879, describes the process as follows: "The moth deposits her eggs in the folds of the grass or grain, always concealing them from sight by pushing them down into the unfolded portion of the leaf, or by cementing the edges of leaf together. Sometimes, however, they are laid in a partial fold and remain partially exposed to view. The eggs are laid singly or in rows, which sometimes contain as many as fifteen or twenty." He also gives a figure showing their position on the leaf.

It will be seen from these quotations, as heretofore stated, that the supposition as to the place where the eggs were deposited, was substantially correct, the only difference being that they are placed on the leaves of the grass instead of on the stem. My supposition that those of the first brood are deposited very early in the Spring and in the night time proves also to have been correct. But to Prof. Riley is due the credit of having first observed the moth in the act of ovipositing; and to Prof. Comstock of having first figured the eggs in position. Prof. Riley describes the eggs as follows: "When first laid, spherical 0.02 in diameter, smooth, opaque, white; covered with a glistening adhesive fluid; shell delicate, becoming faintly iridescent and more sordid before heating." Prof Comstock as follows: "The egg is white and almost spherical. Its average diameter is 6 milometers (0.23 inch.), The perfect outline is sometimes lost from the gummy substance which covers it, and which holds it in place."

The following notice of supposed eggs is given by Mr. Shurtleff in the article already mentioned: "In a letter to Mr. F. W. Putnum May 15, which has been kindly lent to me by that gentleman, Mr. S. P. Fowler says that these appeared to have been some eggs

leposited around the sides of the flower pot (in which the moths were) and had the appearance of being interwoven with a cottony substance. Some writers, I notice, say that this insect deposits eggs near the roots of grass in sacks resembling cotton. Those I noticed were not enclosed in a sack." The writer remarks: "I do not feel at all satisfied with these eggs, for I do not know of any Noctuid depositing eggs in this manner in a cottony substance; they are always laid close together and perfectly uncovered, in irregular patches. May these not have been the cocoons of minute ichneumons enveloped in their loose silk?" In this suggestion he is most probably correct, as we cannot believe they were the eggs of the Army-worm moth.

It was the opinion of Mr. Walsh, that the moths of the Spring, and as he believed only, brood, which come out in July and August, soon afterwards deposit their eggs on the grass, where they remain until the following spring before hatching.

That in the latitude of Southern Illinois and St. Louis, the eggs are deposited in the Spring, usually in April, is now positively known: *First*, by the fact that in two if not in three of the Army-worm years the moths have been seen in the latter part of March, or first of April, in immense numbers in the meadows and elsewhere. *Second*, by the fact that in two instances (one my own observation) the worms were observed in April when very young, at most not more than a week old. *Third*, by the observations of Prof. French and myself as to the first appearance of the moths in the Spring. In 1861, they appeared in the latter part of March; in 1878, first were taken April 13; in 1879, April 2; in 1880, April 2. *Fourth*, by the observations of Prof. Riley, who saw the moths in the vicinity of St. Louis in the act of depositing eggs in the open pasture, in the early part of April.

The evidence, therefore, on this point, so far as this latitude is concerned, appears to be conclusive.

Prof. Riley has shown by his experiments, made in 1876, that the moths commence laying in confinement in about two weeks after issuing from the chrysalis. We may therefore assume that in their natural condition they commence to lay in two or three weeks after issuing. In order to have a definite time to use in the calculations we expect to make, we shall take sixteen days as the average. A small error in this respect will not materially affect the result so far as our calculations as to the length of the insect's life is concerned, as what is added to or taken from the time the moth lives before depositing, will have to be taken from or added to the time the eggs require to hatch; for the reason that from other data we can ascertain very nearly the time that elapses from the moment the moth appears until the eggs hatch.

Prof. Riley found by experiment that the eggs in a uniform temperature of 75° hatched in about ten days. It is probable, therefore, that in their natural condition the time required will be about two weeks. As the moths were seen here in 1861, in the latter part of March, and the worms hatched about the 25th of April, or one month after the appearance of the moth, the time required for the eggs to hatch must have been at least two weeks, if we suppose the moths were observed soon after issuing. Otherwise we must sup-

pose the egg state to have continued a still longer time. We shall therefore assume fourteen days as the average term of existence in the egg state. But this is not done arbitrarily, as will hereafter be seen.

THE LARVA.

FIG. 3.—L. unipuncta—Larva.

As there are some differences in the markings of the larvæ, depending in part upon the stages of growth, the abundance or scarcity of food, and whether they are marching or sedentery, I will give here the descriptions made by different parties at different localities. The short description by Mr. Kirkpatrick has already been given in the quotation from his paper in the Ohio Agricultural Report of 1855.

"The larva or worm when full grown is about one inch and a quarter long, diameter usually something less than one-fourth of an of an inch. Has six true legs (legs with claws), two placed on each the first, second and third segments, back of the head. Also eight ventral pro-legs, two on each the sixth, seventh, eighth and ninth segments, and two legs at the latter end of the body. It is striped lengthwise with dirty-white and greenish-brown or dusky stripes arranged as follows: Along the back is a broad dark or dusky stripe darker in the middle, fading toward the borders and bordered with black. Next below this on each side comes a narrow dark stripe; and next comes another white stripe which frequently has a reddish cast; this last stripe is immediately above the legs and along the line of the stigmatæ or breathing pores. All beneath pale green. The legs are often marked with spots or rings of black. The head is large, equal in diameter to the segment next to it. It is marked with two dark lines that arise from the sides of the mouth and extend over to the back part of the head; they approach each other in the middle and again recede behind. The prominent cheeks or sides bounded by these lines are of a pale fulvous, chequered over with narrow lines of dark brown. There are a few scattering hairs over the body and on the front part of the head." —(Thomas).

"The head is yellowish brown, of a diameter as great as that of the first segment, speckled with confluent fuscous dots. It is marked longitudinally by two dark lines that commence at the corners of the mouth, approach each other towards the center and again recede behind. Over the mouth, between and on each side of these lines, is a short dark longitudinal line, and outside these again a dark dot. The mouth is dusky. The body is marked for its entire length as follows: On the back a broad dusky stripe darker in the middle and fading towards the borders: then a narrow black line; then a narrow subobsolete white line. Beneath all is of a pale obscure green. By holding the insect to the light, a very few scattering hairs become visible above. Legs six, slightly marked at their tip and base with fuscous. Pro-legs ten, normal, marked on their exterior, middle and on their tip with black, the anal ones less obviously so. The length does not exceed one and a quarter inches." —(Walsh).

"They resemble the caterpillars which we see on our apple trees, except that they are destitute of hairs. When particularly noticed, it is seen that they differ very much from each other in their colors and stripes; but those which are recognized as most perfect are of a black color, with a pale yellow stripe along each side; others are greenish, or olive, with more numerous stripes and lines. And the worms occur of all sizes, mixed together, as they have hatched from the eggs earlier or later; those which are full grown being an inch and a half in length." (Fitch.)

"The mature larva is about an inch and a half long. Its cylindrical body, divided into thirteen rings, becomes more contracted at the end, and is sparsely covered with short hairs. The head is covered with a network of confluent spots, while along the face run two lines, diverging at each end. A light-colored, waved line, just above the legs, is succeeded by a dark one, then a light one edged with two thread-like lines; while the upper part is dark, with an interrupted white thread running exactly through the middle of the back. The pro-legs, ten in number, are marked on their outer middle and on their tip with black. Beneath, the caterpillar is of a livid green."—(Packard.)

"*Immature Larva.*—When newly hatched, 1.7 mm. long; dull, translucent white in color, with very minute piliferous points giving rise to pale hairs. Head large and uniformly brown-black; two front pair of pro-legs, atrophied so as to necessitate looping, in motion. Drops by means of a web. In the *second stage* it is quite active; still loops, and spins a web, and drops at least disturbance. Head copal yellow, with six black ocelli (the two inferior somewhat separated from the others); the brown jaws and brown legs conspicuous. Color of body yellowish green, darker anteriorly, the venter being quite pale. The lines of mature larva barely indicated, in faint rose brown; the most conspicuous being the broad stigmatal, a narrower one above it, and two pale, which are medio-dorsal. In the better marked specimens, the body above the sub-stigmatal line consists of eight dark and seven pale lines; the middle pale line medio-dorsal, the second dark one from it most faint and most often obsolete, and the lower or stigmatal one broadest and most conspicuous. Black, piliferous dots, distinct and normally arranged, i. e., on the middle joints, four trapezoidally on dorsum, two in stigmatal dark line, one just above, the other just behind stigmata, one at lower edge of pale sub-stigmatal line near the middle of the joint, and several that are ventral; the dorsal ones on joints 1 and 12 forming a reversed trapezoid to those on middle joints; on joint 11, a square; on joints 2 and 3, a transverse line. In the *third stage*, there is little change. The head has still a copal yellow aspect; being pale, with faint yellowish-brown mottlings; the ocelli still conspicuous. The body is more decidedly striped, the dark stigmatal and pale sub-stigmatal lines more strongly relieved, and all the lines approach more to those of last stage. The pale hairs from piliferous dots are still quite noticeable, especially before and behind, and the dots themselves are generally relieved by a pale basal annulus. The looping habit is lost, but the front pro-legs are still somewhat the smallest. It now curls round, and does not spin in

dropping. In the *fourth stage*, the aspect is quite changed, the general color being dull dark green. The head has the mottlings of a deeper brown, and the characteristic brown lines appear. The second pale line (from the above) is obsolete, and the other five are narrowed, pure white and sharply relieved by dark shades. The prolegs are of nearly equal size, the cervical shield better defined; in short, except in the lighter sub-stigmatal stripe, and more greenish color, the characters of the more normal mature larva obtain. In the *fifth* and *sixth stages*, the changes are mainly in the increasing prevalence of the brown and ferruginous colors, and the greater relief and intensity of the black, especially above the white lateral line. The front pro-legs, in the last stage, are, if anything, longer than the hind ones. I reproduce herewith, with a few additions, my original description of the

Mature larva.—General color, dingy black; appearing finely mottled and speckled under a lens, with the piliferous spots placed in the normal position, but scarcely visible, though the soft hairs arising from them are easily seen with a lens. Four lateral light lines, of almost equal thickness, and at about equal distance from each other, the two uppermost white, the two lowermost yellow; a much less distinct medio-dorsal white line, frequently obsolete in middle of joints, and always most distinct at the divisions; a jet black line immediately above the upper lateral white one, the dorsum near it, thickly mottled with dull yellow, but becoming darker as it approaches the fine dorsal white line, along each side of which it is perfectly black. Space between lateral lines 1 and 2, from above, dull yellow, or reddish, the white lines being relieved by a darker edge; that between lines 2 and 3 almost black, being but slightly mottled along the middle; that between 3 and 4 yellow, mottled with pink brown, and appearing lighter than that between 1 and 2. Venter greenish; glaucus mottled and speckled with neutral color, especially near the edge of 4th lateral line. Legs glassy, and of same color as venter; those on thoracic joints with black claws, those on the abdomen with a large, shiny black spot on the outside. Stigmata oval, black, and placed in the third lateral light line. Head highly polished, pale grayish yellow, speckled with confluent fuscous dots; marked longitudinally by two dark lines that commence at the corners of the mouth, approach each other towards the centre, and again recede behind; on each side are four minute polished black eyelets, placed on a light, crescent-shaped ridge, and from each side of this ridge a dark mark extends more or less among the confluent spots above. Cervical shield polished and mottled like the head, with the white medio-dorsal and upper lateral lines running conspicuously through it. Anal plate obsolete."—(Riley.)

"*The larva, or worm*, when full grown, is 38 mm. (1½ inch) in length. During this stage—which lasts from fifteen to thirty days—the worm casts its skin five times. Its body color is pale green, clearly seen only on the ventral surface, varied elsewhere with longitudinal stripes of yellow, gray and black, the gray often so closely dotted with black as to become dusky. The general arrangement of the stripes is as follows: The entire back is occupied by

a broad black or dusky band, deepest at the middle and along each margin. On each flank is a series of stripes, consisting of a median black or dusky band, on each side of which is a greenish or yellow stripe of equal width, margined on either hand with dingy white that is set off by a mere line of dark. Down the middle of the back is an interrupted narrow white line, often clearly seen only near the head."—(Comstock.)

According to Prof. Riley, the larvæ reared by him in a uniform temperature of 80° developed very rapidly, undergoing five moults with but an average interval of three days between these changes. He also found that larvæ from the same batch of eggs, although under the same treatment, presented considerable variation in the rate of development, some of them passing through the last moult before others had reached the fourth.

They are exceedingly voracious both in confinement and in their natural state, devouring large quantities of food; but, according to my observations, the growth of those that migrate is nothing like so rapid as when in confinement or when they remain sedentary in the character of cut-worms. Their injuries are confined almost exclusively to grasses or allied plants, such as wheat, oats, corn, etc. In some instances they have been known to eat sparingly of the leaves of turnips and a few other plants, but such cases appear to be rare. The most notable variation from this rule was in 1861, when the weeds in the fence corners were eaten by them while on the march from one field to another, and, as will be seen by the quotation below from the Prairie Farmer, even attacked gardens and woody plants. They are exceedingly fond of timothy and young corn, devouring not only the leaves of the former, but also the heads, leaving nothing but a field of slender stems when very numerous. When attacking wheat they usually eat only the leaves; sometimes they make a commencement on the heads, but usually soon leave them without doing much injury; occasionally they cut off a few heads but seldom if ever to any great extent. As the weather is usually damp when they appear in great numbers, and hence the wheat strong and vigorous and liable to rust, they seldom do it any serious injury.

The following statement in the Prairie Farmer of June 13, 1861, is of interest at this point. "The indications up to the last few days have been very promising for an abundant yield of wheat and grass, but we have been suddenly checked in our high expectations by the appearance of the Army-worm in great numbers, and they have completely mowed all the meadows in the vicinity, and the wheat has not escaped them. Many fields have been stripped of every blade and in some they have attacked the heads. Whether they will do any serious damage to wheat is more than I can tell; in several localities it is quite difficult to keep them out of the houses."

The strongest statement in reference to the injury occasioned by them and respecting their voraciousness, is an editorial in the same paper (same date) evidently from the pen of Mr. Emery, who traveled over the sections of the State in which they were most abundant, in order to observe their operations: "Frightful indeed are

becoming the ravages of this insect pest amongst the growing crops of Illinois. The cool weather of the past month has been favorable to their multiplication and growth, and they are now sweeping with all the destructiveness of a prairie fire some of the fairest and most promising portions of our State. Meadows and pastures, wheat, oat, rye and corn fields, gardens, yards, trees and shrubbery, in fact every green thing is disappearing before them. In many localities it is thought that the wheat crop is so far advanced that the stripping of the leaves alone will not materially injure it. In many instances corn can be replanted and the second crop probably will escape them. But if their ravages could be stopped to-day the loss already occasioned by them could not be estimated except by millions of dollars."

They usually commence marching when about half or two-thirds grown; and so far as I have observed, those leaving one field all march in the same direction, but not always, as is supposed by some, with unfailing certainty, toward another field in which there is proper food, for in the case hereafter mentioned, where, in 1875, they left a meadow near our town, the movement was directly toward town—no field with any suitable food being nearer than a mile in that direction. Nor is it true that they always remain in one place so long as sufficient food is to be found there, for in more than one instance I have known them to leave a field abundantly supplied with suitable food and march into others. In one instance, where they attacked a field of oats and penetrated it a short distance, mowing it as they proceeded, they suddenly quit it. There does not appear to be any uniformity in the direction the different armies, or armies from different fields, take. In 1875, the army from one field was moving directly south, while that from another moved directly east.

While marching, they move with rapid motions and apparently with an uneasy feeling, especially if the sun is shining.

The following statement, from the Prairie Farmer of July 4, 1861, is probably not overdrawn:

"An army of them was observed to travel sixty yards in two hours, in an effort to get around a ditch. They began to travel from the infested districts between two and three o'clock, P. M.; toward sundown the tide of travel was retrograde. They did not travel at night; they feed chiefly by night and in the forenoon. As to their number, they have been seen moving from one field to another, *three tiers deep;* a ditch has been filled with them to the depth of *three inches in half an hour.*"

As we have alluded to the fact that they are seen exhibiting two very distinct characteristics, we may as well explain here what we mean by this statement.

The disposition of the worms in some seasons to travel in vast armies is really abnormal, their normal habit being that of a Cutworm, when they remain hidden beneath the grass, cutting it off close to the ground, seldom showing themselves, not even in cloudy weather, but probably coming forth at night to feed. These, so far as my observations go, never leave their hiding places to march, although in a season when others are migrating. In one instance that came under my observation they cut the grass to such an ex-

ent that it could have been rolled up as a carpet. In 1875 I noticed in my own yard the species exhibiting at the same time these two traits or habits. In one portion of the area they were at work as Cut-worms, while an army was marching across another portion from an adjoining yard, the two bodies not commingling or having any connection with each other. Those acting as Cut-worms were paler and much less distinctly marked than the others; they were also larger when fully grown. In order to be certain as to my determination, I traced them to the perfect state; the moths sent to Prof. Riley for examination in 1876 were of the number developed from these Cut-worms.

This fact enables us to understand why it is they are not observed in the non-migratory years, as at this time they are acting the role of the Cut-worm, and are hid from view, but it renders the solution of the question, Why do they march in armies? the more difficult.

The habits of the worms are somewhat similar to those of the ordinary Cut-worms, as they avoid the hot sun, coming forth to feed chiefly in the night or during cloudy days, hiding during the hot and sunny portion of the day under the clods, stones and other rubbish. They prefer rather cool weather, and as will hereafter be shown, appear to be more abundant in damp seasons, (following a previous dry year) than in hot dry years. When in excessive numbers they may be observed feeding throughout the day, unless the sun shines quite warm, which scarcely ever fails to drive them to their hiding places. I have observed them trying to march when the sun was hot; if an open and especially a dusty space, as a road, lay in their pathway, numbers would perish before crossing it, and in some instances the entire army recoiled from the attempt and turned back. An instance of this kind occurred near our town, where an army made an attempt to cross a roadway in 1875, during the hot part of the day, but after large numbers had perished turned back to the field from whence they came; at least they failed in the effort and retreated to the shade of the fence. An open croquet ground lay in the pathway of the little army that entered my yard. I noticed that few that entered upon it (being a clear sunny day) succeeded in crossing it; those which could not reach the grass at the sides perished from the heat of the sun. In this case most of the worms were not more than half grown.

During their life in the larval state, which, as we will show, lasts about four weeks or a month, they change their skin five times; and having completed their growth, descend into the ground a few inches below the surface, where they are soon transformed into a pupa or chrysalis. They spin no cocoon, but by movements of the body and the excretion of a sticky fluid usually form a kind of earthern cell; but occasionally they simply crawl into some hiding place to undergo their transformations.

THE PUPA.

FIG. 4.—L. uni-puncta pupa.

The Pupa is usually a shining, dark chestnut-red, or mahogany, color, about three-quarters of an inch in length, the wing-pads reaching back over two-thirds of the body; at the tip of the abdomen there are two small spines, curving slightly inward. Those of the first brood remain in this state from fifteen to twenty days, at the end of which time the moth appears. Those of the fall brood, if they hibernate in the chrysalis state, do not, as a matter of course, appear as moths until the following Spring; but of this we will speak more fully hereafter.

THE MOTH.

The general color of the upper side of the moth is dark fawn, varying from light to brown. The antennæ are slender, with very minute serrations on the under side; about half the length of the body; the palpi thickly covered with hair, except at the tip; eyes large, round and covered with very short, microscopic hairs; a little tuft of upright hairs on the neck or collar; thorax very robust, with a depressed tuft, consisting of a double series of hairs; the first series forming a transverse ridge just in front of the wings—this series of hairs is short, reaching back on the other scarcely to the middle of the base of the fore-wings; second series extending back over the thorax, but parting in the middle; abdomen stout, tapering; length of entire body to the tip of the abdomen varying from .70 to .90 inch. Front wings rather narrow; the front margin slightly arched or curved near the tip; the outer margin straight near the apex, but rounding from the middle to the inner margin, so as nearly to obliterate the inner angle, which is very obtusely rounded; width of the wing at the inner angle a little more than double the width at the base; expanse usually about one inch and three-quarters, but varying from 1.5 to 1.9 inches. Hind-wings triangular; apex slightly docked; outer margin with two slight undulations; width across the angles about equal the length. Head and thorax grayish-brown, varying in different specimens from ash-gray to dark-fawn or even brown; in good, fresh specimens the transverse ridge of the thorax is marked by a paler line, bordered above (behind) by a narrow, dark line; front wings above, varying from a fawn to a dull-brown; a small white dot, with dark surroundings, near the center; a slender, dark line running along the middle from the base to this dot; usually an oblique, dark streak near the outer margin; peppered over with scattering, minute black dots, two transverse rows more distinct, one a short distance from and another along the outer margin. Hind-wings pale at the base, dark toward the apex and outer margin; veins dark, but very variable; in some specimens entire wings dark fuscous, in others almost silvery white; underside of fore-wings paler than above, especially along the inner and outer margin, the middle portion often clouded with fuscous; hind-wings paler beneath, usually with a transverse row of dark dots near the parallel with the outer margin; abdomen grayish above; light fawn color beneath.

As a means of comparison, I give here Mr. Walsh's translation of Gueneé's original description, with his own comments:

"For the benefit of those who, like myself, do not possess a copy of Gueneé, I subjoin his generic and specific characters of our insect, which have been most obligingly furnished to me by my friend Dr. Morris. I translate from the original French, adding, in brackets [ ], such further particulars as are applicable to our species:

"Gen. *Leucania*, Ochs. Caterpillars cylindrical, smooth, pale, with fine longitudinal lines, and a sub-globular head, living on grass and hiding by day either in tufts [of grass], or in the interior of cut stems, without eating the pith of them. [Feed by night, and also in the forenoon.] Chrysalides ordinarily contained in cocoons underground. [Spin no cocoon.] Antennæ [of the imagines] pretty short, pubescent, with two stronger ciliations upon each joint of the male, sometimes serrate with whorls of ciliations. Palpi pretty thick, connivent, with furry hairs and with the last joint very short. [The two first joints embracing the front; the third descending decidedly.] Thorax smooth, sub-quadrate. Abdomen smooth, pretty long, garnished with hairs at its base above, and sometimes on its sides, [and also at the tip in both sexes.] Legs, more or less hairy. Tongue, well developed. Front wings entire, with the tip more or less pointed, seldom having the 'lines' and 'spots' very distinct; the latter being almost always reduced to a cellular point (a un point cellulaire.) In repose the wings are roofed at a very steep angle.

"*L. extranea*, Gueneé. The front wings [on the upper side] are very pointed at the tips, of a gray more or less reddish, sometimes whitish, much specked with black atoms [the basal half of the costal margin being lighter.] The two ordinary 'spots' are distinguished in the cellule by a color brighter or less tinged with reddish. Under the 'kidney shaped' spot is a white point, indistinctly surrounded by blackish. There are no visible traces of 'lines,' but the series of black points which follows the 'cubitus,' is often very distinct. An oblique black streak [shaded off gradually towards the terminal margin] starts from this 'line,' and ascends to the apex [of the wing], and with the form of the wings principally characterizes this species. [All the nervures—but especially what in the Neuroptera is called the *Median* by my friend Dr. Hagen (Monogr Libellul, vol. 1, plate I., and vol. II., plate 22),—are more or less white, and more distinctly so towards their tips. Just inside the fringe there is a series of eight black dots, one between every two nervures. The white spot before referred to is always on the trifurcation of the 'median' nervure and generally of an irregular rhomboidal form.] The hind wings are a little transparent, grey, with the terminal border and the nervures blackish, [the blackish border shading gradually into the grey. The fringe of both pairs of wings is pale, with a narrow dusky band inside of its middle.] The sexes scarcely differ.

"The underside of the wings, which Gueneé does not notice, is of an opalescent yellowish white, with the terminal margin widely freckled with numerous confluent dusky specks, so as to give the appearance of a broad, dusky band with a definite outline. The costal margins are also lightly freckled with similar specks. The

basal half of this band in the front wing is darker than the terminal half, except towards the costa, where there is a roundish dusky spot. The basal edge of the band in the hind wing has a small longitudinal dusky spot on the costal and on the bifurcations of the sub-costal nervure, on the principal or middle 'sector' of the 'arc,' the two interior sectors of which are often, one or both of them, obsolete, and also on the trifurcations of the median nervures—making in all, seven spots. The nervures in both wings are of the same color as the portion of the wing which they traverse, except the 'arc' or semi-circular transverse nerve in the hind wing, connecting the sub-costal with the median, which is widely dusky. The fringe of both wings is yellowish white, with a few dusky dots, especially towards the tips.

"Inside the fringe there is in the front wing a series of eight, and in the hind wing a series of six black dots, commencing at the tips, and placed one between every two nervures, including only the principal 'sector' of the lower wing.

"The thorax, head, palpi and antennæ are of the same color as the general upper surface of the front wings, the antennæ towards the base being lighter. The eyes are hairy and of a dull, greenish color. The thorax has a narrow band of a lighter tint in front, much curved forwards in the middle, and separated from the darker tint behind it by two very distinct narrow bands or lines—the anterior very light, the posterior very dark. The abdomen above is of the same grey color as the hind wings above. Beneath the prothorax is dusky grey; the thorax and abdomen of an ash grey, the latter speckled with a few black atoms, and with a row of three black spots on each side of it, which are sometimes confluent. The wings expand from one and one-half to one and three-quarter inches. Length of body when dried, three-quarter inch or less. The above description applies to seven individuals from Union county, Centralia, Bloomington and Rock Island, which exhibit no material variation, except that in one specimen the median nervure is edged with dusky from the white spot to its base."

The variations observed in the perfect insect depends more upon the character of the season and time of year than on locality.

TERMS OF LIFE.

In order to settle some of the questions in reference to the life-history and habits of the species, it is necessary to ascertain what is the average length of the different stages, viz: Of the egg from the time it is deposited until it hatches; of the larva state; of the pupa state; and of the moth from the time it emerges from the chrysalis until its eggs are deposited. Although the moth may live an indefinite time after it deposits eggs, it is unnecessary to take this into consideration, as the life cycle is complete when the eggs are deposited.

Where positive data ascertained by experiments can be found it is undoubtedly best to use it, at least as a basis, and we expect to do so in this case, but the growth and development of individual insects in a uniform temperature with abundance of food placed in reach, can seldom, if ever, be accepted as exactly what it would be in a state of nature.

We shall therefore endeavor, by an examination and comparison of all the data accessible, to ascertain what the average length of these stages is in a state of nature.

As bearing upon this question and as data we wish to use, we give here a list of the dates of captures of the moth, and also of the appearance of the larvæ:

DATES OF CAPTURES OF THE MOTH.

Illinois—Carbondale, Jackson Co.:
April 2, 6, 7, 8, 9, 10 (1879); 13 (1878); 2, 3, 4, 13, 15, 21, 25 (1880).
June 21, 22, 23 (1875, observed on these days emerging from the ground) 29.
October 18, 24 (1879).
November 10 (1879).

Murphysboro, Jackson Co:
June 20, (1861, day of exit from the pupa in confinement).

Cook Co.:
August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31.
September 1, 2, 3, 4, 7, 8, 9, 10, 11.—(Westcott.)
In October.—(Bartlett.)
"April 3, 10, 11, 16, 19, 25, 26, 27, 28, 30 (1878).
"May 2, 15, 16, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 (1878).
"June, July, August, September to October 18 (1878).
"November 7, 8, 11 (1878)."—(Worthington.)

Normal, McLean Co.:
May 24, "two specimens." "June 28, several." "From July 15, to August 18, very common each year.—(Forbes.)

Woodstock:
Larva entered the pupa state July 9. Moth issued July 20, (1876).—(Coquillet.)

Galena in 1876–7.—(Bean):
(1876) August 1. Abundant and has been so for a week.
August 1, 2, 3, 4, 7, common.
August 13, decreasing; 23, very few; 31, occasional.
September 7, very few, fresh looking; 18, frequent.
October 9, noted; 22, two; 23, one; 30, frequent.
November 12, noted.
(1877). April and May.—Not found, although frequent and careful observations were made.
June 7, few; 24, 29, several.
July 3, frequent; 6, noted; 15, noted; 23, 27, few.
August 5, 12, occasional; 14, 15, 19, 20, 26, 27, frequent.
September 14, several; 23, noted.
October 13, several.
Dimly remember captures, think (1878) indicating probable hibernation in pupa state for this locality, but can't be sure.

Missouri—St. Louis:
"Early part of April;" "Middle of April;" "June to October;" "early in August;" October 9."—(Riley.)

Iowa—Ft. Madison:

About July 7, moths appeared.

"Caught moths in the Fall of 1875 and Spring of 1876 in great numbers, by sugaring, looking in both seasons very fresh."—(Hoffmeister.)

New York—Schenectady:

July 7, 21.

August 7, 13, 16, 18, 19, 21, 25, 26, 28, 30.

September 2, 4, 7, 9, 11, 13, 15, 18, 20, 22, 25, 27, 39, 30.

October 2, 4, 6 (1875).—(Lintner.)

Clyde, Wayne Co.:

First appearance June 23; subsequent captures not recorded. Plenty at sugar.—(Devereaux.)

Long Island:

Moths commenced appearing June 21 (1880).—(Comstock.)

Albany:

Latter part of May; from a single pupa found.—(Meske.)

Pennsylvania—Reading:

"Flies into my lamp in evenings in August and part of September."

"Found one in mid-winter."—(Strecker.)

Massachusetts—South Shore:

About 1st September, in immense numbers.—(Boston Daily Advertiser, quoted by Riley.)

Cambridge:

October 27, at sugar.—(Mann.)

"Until late in October."—Thaxter.)

Canada—St. Catharines:

June 2.—(Norman.)

Maine—Bangor:

About the last of August.—(Packard.)

Woldsborough:

Worms collected August 14; became pupæ the 20th; first moths appeared September 6, and continued coming out until September 16.—(Goodale—teste Packard.)

Kitteny Point:

"Appeared at sugar in small numbers July 25, and was common from that time till October 1. On the evening of August 8, an immense swarm visited my sugar, and though I had more than seventy square feet of surface sugared, there was not room for all that came. They were crowded on the trees and boards as thickly as they could pack, and I estimated that there were at the very least 10,000 specimens on the sugar at a time. They diminished rapidly in numbers as the evening went on, and by ten o'clock there were about the usual number. The next evening they were in no greater numbers than usual.—(R. Thaxter.)

Southern States—Prof. Comstock reports having received specimens of the moth "from Texas, Alabama and Georgia, all through the winter."

It is possible that this list might be largely increased by examining the various collections throughout the country, but as it is, it will indicate very clearly the dates at which the moths usually make their appearance north of the latitude of Washington City, or in what may properly be called the northern portion of the United States.

NOTICES OF THE LARVÆ.

Illinois—Jackson Co.:
First seen in 1861, about April 29, continued to appear in various parts of the county until May 15, and finally disappeared about June 10.
Latter half of September, 1874.
Latter part May to first week in June, 1875.
Carbondale, Jackson Co.:
June 4 (1877) all the first larvæ below the dirt to pupate.
June 18, two moths appeared.
June 21, four moths appeared.
June 22, one moth appeared.
Centralia:
June 10, "not all gone."
Pana:
June 2, "worms at work;" June 17, left about this date.
Champaign:
June 10–12, growth about completed.—(Emery.)
Knox Co.:
June 18, worms at work, not fully grown.
Missouri—St. Louis:
"Early part of May." "During the latter part of April and throughout the month of May.
"Early in June mowing down meadows." "All through the month of August, and a few full grown individuals as late as the 23d of September.—(Riley.)
Hannibal:
June 8, here in myriads destroying the grass.—(Trabue—teste Riley.)
Maine.—"About the middle of August, and soon after the caterpillars entered the ground to transform."—(Packard.) August 2, 13.—(Packard.)
Massachusetts.—Was noticed first of July.—(Packard.)

The plan we propose to adopt in this investigation is as follows: Taking the facts ascertained by direct experiment with specimens in confinement, we use these as a basis, assuming that they, as a rule, indicate the minimum length of the stages. We then compare the dates at which the worms appear and disappear in different sections, the dates at which the moths are seen, and such other facts as we have relating to their life history, in a state of nature. The results thus obtained are compared with and checked by the data obtained by experiments. As a second check upon our calculations as to the length of the various stages, we endeavor to ascer-

tain independently, as nearly as possible, the length of time from the appearance of the moths of one brood to the appearance of those of the following brood, or, in other words, the total length of life of the individual, which must be the sum of the various stages.

As we have already touched upon the length of time the insect exists in the egg state, and have no further data to present, we shall proceed upon the assumption already made, that they remain in this state about two weeks. As a matter of course, we refer only to those broods that hatch out during the season in which they are deposited, leaving, for the present, the question as to whether they pass the winter in this form out of the question.

Prof. Riley found, that by feeding the worms in confinement at an average temperature of 80°, some passed through the larval state in fifteen or sixteen days, and in his last article on this subject (1880) uses this in part as a basis on which to found his present theory as to the number of broods. But all the evidence I have been able to obtain in reference to this point shows that they continue about a month in this state when in their natural condition.

My experience in 1861, in the natural temperature of the locality, gave, as nearly as I could estimate the age of the worms at the time, twenty-eight days as the shortest period. Mr. Walsh, who also reared the species from the larval state, gives "from four to five weeks" as the length of the term. Dr. Packard allows one month. Dr. Fitch says they continue to feed and travel about three weeks from the time they are discovered, which he says is when they are about one-third grown.

The investigations of these parties agree in fixing the average time at not less than one month. The dates at which the worms have been observed and the moths captured will be found, by a careful examination, to agree with this conclusion. This we will notice after we have called attention to the length of time the insect remains in the other states.

The individuals of the Spring broood remain in the pupa state, as shown by repeated experiments, from two to three weeks. My experience gave an average of seventeen or eighteen days; Dr. Fitch says "nearly three weeks;" Dr. Packard and Prof. Riley say, "from two to three weeks;" Mr. Walsh's specimens remained in this state fifteen days. I therefore assume seventeen days as the average time the insects of the Spring brood remain in this state.

The moths reared by Prof. Riley commenced to lay about two weeks after issuing from the chrysalides. This is the only positive evidence we have on this point, but it agrees quite well with such data as we have in reference to their habits in their natural condition, and therefore may be taken as sufficiently accurate for all practical purposes. He adds that they continued to lay for two or three days. This will give an average of sixteen days from the time the moth issues until the eggs are deposited.

The term of existence of the individual, from the time the egg is deposited until the resulting moth deposits is, therefore, on an average, seventy-seven days: egg 14, + larva 30, + pupa 17, + moth 16 = total 77 days.

Now let us see how nearly this agrees with the appearance and disappearance of the moths and worms.

Taking the Carbondale list, where the April and June captures, as I know from actual observation, represent the first appearance of the moths in each case, we find the length of time that elapsed between the first in April (the 2d) to the first in June (20th) to be seventy-eight days. This supposes the first observed in April had just issued from the chrysalis, as those observed in June were observed the day they issued, and therefore represent the shortest possible time.

Lintner commenced collecting July 7th, and continued until October 25th, by sugaring for Noctuidae; his examinations were made three to four or more evenings each week, without intermission during this period. Up to August 7th no Army-worm moths were seen except on the evenings of July 7th and 21st. From the time they began to reappear in August they were absent no evening until he had passed October 6th, after which no more were seen. During this latter period they were abundant, and almost always in good condition.

Those seen in July were evidently the last of a brood that preceded those seen in August, September and October, the latter all certainly belonging to the same brood. Counting from the last of the first brood—July 21st to the last of the second (October 6th) we have just seventy-seven days. We have no positive evidence as to the time the moth first appears in this section. Supposing the pupa found by Meske about the middle of May, became a moth May the 20th, (as this occurred a few days after it was found), there will be from this time to the date of Lintner's first August capture, just seventy-eight days.

Prof. Riley does not give exact dates of captures of the earliest of the different broods; but he speaks of capturing "Early in April," and the "Middle of April," "Middle of June," "Early in August," also "October 9th." Assuming "Early in April" to be the 5th or 6th, and the middle of June the 15th; this gives seventy or seventy-one days. The continuation of the moths from the middle of June till early in August also corresponds very well with Lintner's list; except that it is earlier in the season, which corresponds with the difference in latitude. But the moths of the third brood, according to the slight data he has recorded, appears to have been considerably longer making their exit from the chrysalides.

The life period, as calculated by the meager data we have in reference to the appearance of the second brood of worms, is considerably longer than the estimate given.

The first brood in Jackson county, Illinois, disappeared about June 10th, and those of the fall brood seen were full grown in September between the 15th and 30th. This corresponds almost exactly with Prof. Riley's observations as heretofore quoted. From June 10th to September 20th gives one hundred and two days. It is not possible that there could have been an intermediate brood in this period, as the time is too short, and moreover there is an entire lack of evidence to sustain such a view.

We may therefore assume as pretty well established, that the life of the individual of the Spring brood from the time the egg is deposited until the resulting moth lays her eggs, lasts not less than seventy-seven days under ordinary circumstances, with the probability that it may be extended rather than shortened. But the length of the individual life does not give us the period the brood exists. Prof. Riley has shown clearly, what is corroborated by the observations of others, that the development of different individuals varies considerably, especially in the larval and moth states.

As all the facts ascertained in reference to the history of the species in the northern section of our country (as I have defined this term) tend at least to show, if they do not demonstrate positively, that the species appears in broods, which do not so run into each other as to lose this characteristic, that is to say, one brood entirely disappears in one state—say for example the larval—before it appears again in that state, (though the larva of the second may appear before the moths of the first disappear), it is therefore necessary, in order to understand the entire history of the species, to determine the length of time a brood exists. Though in calculating the possible number of broods we must use the life term of the individual.

The worms first seen were near Murphysboro, in Jackson county, Illinois, April 29; were quite small, at most not more than one week old. This would make the date of hatching about April 22. The last seen went into the ground about June 10th. Allowing one month for the larval life, this would show a variation of eighteen days.

Col. B. L. Wiley, of our county, who has observed this insect very closely during the past thirty years, gives forty days as the term of existence, as worms, from the time first seen—very young—until all have disappeared. Supposing them to be a week old when first observed—and from his description they could not have been older—this gives a variation of seventeen days. Prof. Riley's statements, "during the latter part of April" and "early in June," will give at least as great variation as above shown. Lintner's list of moth captures indicates that the moth lives considerably longer than the larva, or that the variation in the time of appearing is much greater than shown above. The variations in the specimens reared by Mr. Goodale (reported by Dr. Packard) amounted to nine days only.

It will probably be safe to assume at least eighteen or twenty days as the difference in the time of appearing and disappearing of the different individuals of the spring brood. Add this to the life of the individual and we get from ninety-five to ninety-seven days as the brood period from the first eggs until eggs are again all deposited. If we take Lintner's list and calculate back to the time the egg was deposited which produced the moth caught August 7th, and forward from that time to October 6th, we have (supposing the moths then ceased to exist) as the entire life of the brood from the first egg to the death of the last moth one hundred and twenty-two days. This estimate is of but little value, as it is possible the moths or a portion of them live through the winter. The life of the individual is therefore the only safe guide in discussing the question

now before us. In the calculation made above, giving ninety-five to ninety-seven days as the brood period, no account is taken of the time the moths live after depositing eggs, and it is limited to the Spring brood.

NUMBER OF BROODS AND HIBERNATION.

The number of annual broods of this insect has long been, and is to a certain extent yet, a disputed point, although now most entomologists—in fact all so far as I am aware—accept the view I first advanced in 1861: that in the latitude of Southern Illinois it is at least two-brooded.

In the Prairie Farmer of June 20, 1861, I expressed my belief that it is double-brooded, and in that and other articles published in the same paper during that year, give my reasons for this opinion. In fact, I brought forward absolute evidence of the correctness of this opinion, by showing at least one well-attested case of both the Spring and Fall broods of the worms appearing in this county the same year, in large and injurious numbers. This will be found in the Prairie Farmer of August 22, 1861. Afterwards, for a time, I was disposed to give way partially to Mr. Walsh's view, looking upon this well-attested case as rather exceptional, or that perhaps the species was double-brooded in the southern part of the State and single-brooded in the northern portion. This in fact was one of the chief points of controversy between Mr. Walsh and myself, as Prof. Riley correctly states in his second and eighth reports—Mr. Walsh holding that it was single-brooded, while I contended there were two generations in a year. I was therefore somewhat surprised to find Prof. Riley making the following statement in 1880 (Am. Entomologist, August, 1880): "From the time Fitch wrote so fully on this species, in 1861, until the record of our [Riley's] observations in 1875 and 1876, it was the prevailing belief among entomologists that there was but one annual brood of the species, especially in the Northern States, no absolute evidence of a second brood having been obtained." It is true he says "prevailing belief," but the omission to mention the fact that the point was strongly contested certainly conveys a wrong impression.

It is also evident from Dr. Fitch's language, and the theory of the multiplication advanced by him, that he believed the species to be double-brooded. Although he does not expressly say so, Mr. Shurtleff appears to take for granted that such was his belief. Dr. Packard appears also to have held the same view in 1861 (Paper in Agl. Surv. of Maine), at least in reference to the latitude of Illinois.

Mr. Kirkpatrick, in the paper already referred to, says: "It is not positively known how many broods of Army-worms there are in a year, but there is no doubt that there are at least two, for the moths hatched in mid-summer deposit their eggs immediately after, and the last brood must remain either in the caterpiller or pupa state throughout the winter."

But what renders this assertion of Prof. Riley the more surprising is the fact that in 1876 he still believed it to be single-brooded, at least in ordinary seasons and north of the 38th parallel, which

includes St. Louis, where he was then located, and even then combatted the double-brood theory. In the first article on this insect, in his eighth report (1876) he says: "All the evidence, and the whole history of the insect as here set forth, point to its one-brooded character at least in ordinary seasons, and north of the 38th parellel. In the more Northern States, it is evident from the lateness of the season when the worms enter the ground, that those which issue as moths the same season cannot beget a second brood, since the ovaries are so immature at the time of issuing. There is in fact no actual evidence of its two-brooded nature. One of the arguments brought forward in support of the theory is, that it is difficult to conceive how an insect that produces but one brood annually can become at times so prodigiously multiplied. But it is only at long and irregular intervals that it does become so prodigiously multiplied, and after such a wide-spread appearance of it in our cultivated fields as that of 1875, it takes several years of undisturbed and unnoticed multiplication, culminating in unusually favorable conditions, before the decimation of its ranks that inevitably follows such undue increase is repaired, and this notwithstanding its great prolificacy. It is an interesting fact, also that most Lepidopterous insects that have a wide geographical range and the peculiarity of appearing suddenly and at irregular intervals in vast swarms, are known to be single-brooded, while most of our Cut-worms, its close allies, I have by experiment proved to be so. The second argument in support of the two-brooded nature of our Army-worm is, that accounts are often heard of the Army-worm appearing in the fall of the year, but in every instance where I have been able to obtain specimens for examination, they have proved to be the fall Army-worm."

Moreover, this view was required by the theory he then held in reference to its method of hibernating. That "those moths which issue early in the season probably lay their eggs in the Fall, while those which issue later hibernate and lay their eggs in the Spring."

In the second article on this insect in the same report, written after his discovery of the eggs, he remarks: "It is thus evident, that the conclusions arrived at in the body of this report as had not been settled by direct observation are essentially correct, as the above recorded facts bear on them. The only part needing correction is on pp. 35–36, where the statement that the moth will not oviposit in confinement should be qualified by adding 'when reared indoors from the larva,' which was indeed implied."

It is evident therefore that up to this time (after April, 1876) he still held that it was single-brooded.

In his ninth report (1877) he for the first time partially abandons his previous opinion on this point and adopts the same view I suggested in 1861, that while it is probably single-brooded in the more northern sections, it is double-brooded in the latitude of St. Louis.

Prof. Comstock remarks in his report (1880), as Entomologist of the Agricultural Department, that "it has always been supposed that there is but one [generation] in the Northern States," etc.

This is erroneous unless by "Northern States," he intends only the Eastern States.

In the month of September, 1874, I had my attention called to a mall but very distinct army of these worms crossing the walk leadng to the University south of our town. They were making their ray to a lot on the west, containing young rye which had been own unusually early. They were then apparently fully grown, and lid very little injury to the rye. The following Spring the same lot ras overrun by Army-worms. I made a memorandum of these acts, but did not publish them, as I was not then devoting any pecial attention to Entomology.

We may therefore consider as established, that the species is at east double-brooded in the latitude of St. Louis and Southern Illiıois, and that the experience of 1880 renders it highly probable hat the same is true in reference to its life-history in the vicinity of New York City.

Whether there is but one brood further north, or more than two broods further south, is still a matter of doubt. And whether it is usually or ever three-brooded in the latitude of St. Louis and Southern Illinois, is also a question yet unsettled.

Prof. Riley, in his ninth report, expresses the belief that "in the more northern States, at least, or over the larger portion of the country in which it proves injurious, it is but single-brooded." But that at St. Louis it is at least two-brooded, and that probably there are occasionally three generations in a season. In his article in 1880, already mentioned, he thinks there is still another generation in the latitude of St. Louis, and additional ones in the Southern States.

As I interpret his language in his last article on the subject, he now believes it probable that there are occasionally as many as four generations in a season in the latitude of St. Louis, and more than four farther south.

Dr. Packard (U. S. Geol. Surv. Territories, 1877), while accepting the theory that it is normally two-brooded and probably occasionally three-brooded in the latitude of St. Louis and Southern Illinois, asserts that it is single-brooded in the Northern States.

Prof. Comstock thought, at the time of writing the Army-worm article for his report (June 21, 1880), that there would be two generations during the year in Long Island, and remarks that "farther south, during winters of unusual mildness, a succession of broods is kept up during the entire year."

It is evident, from what has been stated, that entomologists have not come to an agreement in reference to this question, except upon the fact that it is at least two-brooded in the middle belt or latitude of its distribution north and south; and in this respect, as we may truly say, after wandering 'round the circle, have at last come back to the point where I stood twenty years ago, and are so far correct. But, while I think it quite probable that there are more than two generations in the Southern States, I have strong doubts about this being true as a general rule in Southern Illinois, or at any point north of the Ohio river, I am also of the opinion it is double-brooded as far north as the northern limits of this State, and as Central New York.

I have observed the moths on two occasions, the same day that they issued from the chrysalis, June 20, 1861, at Murphysboro, Illinois, and June 21, 22 and 23, 1875, at Carbondale, Illinois. In the latter year those observed were not reared by me, but were in their natural condition in my door yard and were the first to issue. I had watched the worms which, as elsewhere remarked, were acting the roll of the Cut-worm. The dead grass (killed by them) marked the exact area where they had entered the ground. On the 21st of June one only was seen to fly from the spot. Watching more carefully next evening (22) I had the pleasure of seeing a number crawling up the grass stems with their wings yet damp and not fully expanded. The same thing was repeated the evening of the 23d. After this I ceased my observations and hence cannot say how long they continued to issue.

We may therefore assume that June 20 is about the earliest date at which the moths of the first brood begin to appear here. Counting back sixty-one days we have the date when the eggs were deposited—April 20th—which corresponds almost exactly with the date supposed from the first appearance of the larvæ in 1861. It agrees also very well with the earliest captures of moths in 1878, 1879 and 1880.

Assuming eighteen days as the difference in time between the first and last deposit of the brood, and we have as the time of depositing in this latitude from April 20th to May 8th. Then, according to the estimated life of the individual as heretofore given, the resulting moths of this brood would deposit their eggs between the 6th and 24th of July, and the larvæ would enter the pupa state between the 20th of August and 7th of September. If transformed the same season, they would appear as moths between the 6th and 24th of September. These are evidently the ones seen in this section and in the latitude of St. Louis in October.

We would have then the third brood of moths, unless those appearing in April are those of the second brood which have hibernated in this state. This point will be discussed hereafter.

Suppose that this third brood of moths, that is to say the moths of the second brood of worms, all issue from the pupæ instead of the pupæ wintering over, and let us calculate what would be the result. Their eggs would be deposited between the 21st of September and 9th of October, the worms hatched between the 6th and 24th of October and the larvæ become full grown between the 6th and 24th of November.

These calculations, as will be seen, are based upon the facts ascertained in reference to the first brood, the average life of the insect in its different stages being taken. To assume a shorter time is to select one or two isolated cases in order to sustain a preconceived theory. The evidence in reference to duration of the second brood is very imperfect and unsatisfactory, yet so far as it goes it indicates a longer individual life than has been here assumed, which brings out the moths of the second brood between the 6th and 24th of September in this latitude. The earliest captures given of the moths from the second brood of worms (except possibly one) are in

October. Prof. Riley notes the capture of two females in September, time not given, which he says had the eggs fully developed, and as his own reasoning shows, he believed were from the first brood of worms. In his ninth report he states that by diligent search out doors he "found larvæ of different sizes all through August, and a few full grown individuals as late as the 23d of September." Those I observed at Carbondale, Ills., were seen between the 15th and 20th of September, probably soon after the 15th, and as heretofore stated were fully grown. Now it is evident these could not have developed into moths before the 8th or 10th of October, which would agree very well with the dates of captures in October given above. From these facts we are led to believe that the life of the second brood is somewhat longer than that of the Spring generation.

From these facts, we believe we are justified in concluding that it is impossible for a third brood of worms to be produced, which shall pass the winter, in this State, as Prof. Riley assumes, in his articles of 1880. Either, *first*, the greater portion of the pupae of the second generation must hibernate, the small number of moths that issue either dying or living through the winter; or, *second*, if the moths issue generally, they deposit eggs, which remain over until spring and then hatch. We might assume, as a third possible solution, that the moths issue generally and hibernate. As opposed to the last two suppositions, are the following facts: *First*, that so few captures of moths have been made in October; *second*, that only two or three specimens, at most, have been taken in the winter, notwithstanding the fact that in December we often have very pleasant and comparatively warm weather, in this region. So far as I am aware, not a single winter capture, in Illinois or Missouri, has been recorded; that of November 10th, which I record, being the latest.

That the armies seen here in April and May do not pass the winter in the larval state, is evident from their small size when first seen; nor could their predecessors have passed the winter in this state, as this would require them to come out from their winter retreat about the first of March, or earlier.

The view advanced by Prof. Riley, in 1876 and 1877, which was but a slight modification of the view we have long held, we believe to be the true one: that in this latitude, some of the individuals of the second generation are transformed into moths, and in this state pass the winter, while the greater portion of the brood hibernate as pupae. We think that, really, but few of the moths that come out live through the winter, though it is possible a few do.

In reference to the latitude of central New York, Massachusetts, and the extreme northern part of Illinois, the facts are somewhat difficult to explain in accordance with what we have found to be the case in southern Illinois and the region of St. Louis. But, retaining our estimate of the time the insect exists in its different stages, which we believe is substantially correct, and evidently not too great, let us apply it to the data we have relating to this more northern latitude, and see what the result will be, and if found correct, accept it, whether it agrees with preconceived theories or not.

If the *black worms*, mentioned by Dr. Fitch as appearing at Worcester, Mass., and Rensselaer, N. Y., in May, 1817, were Army-worms—and of this there can be but little doubt—they must have been at the time mentioned, May 22, at least half-grown, as they were marching. If the eggs from which they were hatched were deposited the same season, it must have been at least as early as April 22. But so far as I can learn, no moths have been captured at this early date by any of the numerous collectors of those States. We may suppose they were present but not observed,—but this is abandoning our data in order to sustain a theory, unless it can be shown that the spring of 1817 opened unusually early, and that the winter was a very mild one. But unfortunately, the records we have at hand, which, except in two or three seasons, give only the annual temperature, show that at Cambridge, New Bedford, Salem and Williamstown, Mass., and at New Haven, Conn., the temperature of both 1816 and 1817 was below the average. The opening months of the year, at Cambridge, Mass., show the following variations from the average:

	January—1°.25.	February—6°.28.	March—2°.1.	April—0°.40.	May—0°.1.
New Bedford.	January—2°.4.	February—6°.28.	March—2°.8.	April—0°.1.	May—0°.5.

It is well known, as stated by Dr. Fitch, and also in Thompson's History of Vermont, and Blodget's Climatology, that 1816 was an unusually cold and dry year, especially the summer and autumn. The winter, at Salem, New Bedford and Williamstown, according to Dr. Holyoke's observations, was slightly above the average; at Cambridge slightly below it. Blodget states that "the most remarkable depression of temperature in the summer months known to all history of thermometric measurements occurred in the period from 1811 to 1817."

It is therefore a question whether the element of unusual heat or seasonal warmth is a necessary factor in the devolopment of this insect.

We are forced, therefore, to abadon the idea that in this case the ancestors of this brood wintered in the pupa state, as this would suppose them to have transformed into moths between the 5th and 10th of April. We must, therefore, adopt one of three theories—1st, that the moths hibernated; 2d, that the eggs wintered over; or 3d, that they had passed the winter in the larva state.

The last agrees with the facts so far as the date at which they were seen is concerned, more closely than either of the other suppositions. But it is remarkably strange that such a host of half-grown larvæ as indicated by the following extract from the original account, should not have been noticed and the fact recorded at least in the same connection:

"1817—Worcester, May 22. We learn that the *black worm* is making great ravages on some farms in this town, and in many other places in this part of the country. Their march is a 'deployed column,' and their progress is as distinctly marked as the course of a fire which has overrun the herbage in a dry pasture. Not a blade of grass is left standing in their rear. From the appearance of the worm, it is supposed to be the same which usually infests gardens, and is commonly called the Cut-worm. We are

informed that about forty years ago the same kind of worm made great destruction in ploughed land, among spring grain, but particularly in fields of flax. (Albany Argus adds to the above as follows:) The black worm is also destroying the vegetation in the northern towns of Rensselaer and eastern section of Saratoga. Many meadows and pastures have been rendered by their depredations as barren as heath. It appears to be the same species of worm that has created so much alarm in Worcester county, but we suspect it is different from the Cut-worm, whose ravages appear to be confined to corn."

Leaving this for the present, we will turn to the later data upon which we can rely with a greater degree of confidence.

We learn from Prof. Comstock's report that the moths began to appear the present season as early as June 21. The eggs must therefore have been deposited about the 20th or 25th of April, if laid by the moths the past spring. This date agrees almost exactly with that assumed for the early brood of 1817. The moths from the eggs deposited by these would begin to appear soon after the first of September, and continue to come forth until about the 20th of the month.

Turning now to Dr. Lintner's list, we find that the last moths of, as we suppose, a preceding brood were captured July 7 and 21; that those of the succeeding brood commenced coming out August 7, and were seen continuously from that time until October 6, when they entirely disappeared.

The eggs which produced the moth caught August 7 must have been deposited between the 1st and 10th of June. If we assume that those observed August 7 were the first of the brood to appear, which seems reasonable, and allow a variation of eighteen or twenty days between the ages of individuals of the same brood, then the last eggs of this brood were deposited about the last of June, and the last moths issued from the chrysalides about the 1st of September. If we suppose the moths live as much as two or three weeks after depositing their eggs, or that there is greater variation in the ages of the individuals, the dates in Dr. Lintner's list agree very well with the calculations as to term of individual life, and with all other data we have except that of 1817 and 1880.

Until more data is obtained in reference to the species in these more northern sections, the mode of hibernation there must remain a subject of doubt and uncertainty.

PROPER HOME OF THE SPECIES AND CHARACTER OF THE SEASONS FAVORABLE TO ITS DEVELOPMENT.

In Prof. Riley's article of 1880, above referred to (Am. Ent. Sept.), we find the following statement. After mentioning certain facts, he remarks:

"These facts clearly disprove Fitch's theory, and we must believe that the Army-worm is most likely to appear after dry seasons, *regardless* of the wetness or dryness of the season in which it occurs." He then proceeds to criticise somewhat severely Dr. Fitch's theory, and concludes that he was "hard pressed for argument" to support it.

If we turn to Prof. Riley's second report, 1870, we find him expressing his opinion very decidedly as follows: "The Army-worm delights in fact in cool, moist and shady situations, and from the passages already quoted from Mr. Kirkpatrick, where it is shown that the worms which swarmed on the Cuyahoga flats, did not attempt to remove to land a foot or so higher; and from *further facts recorded by Dr. Fitch*, it becomes evident that its natural abode is in the wild grass of our swamps or on low lands. During an excessively dry summer these swampy places dry out, and the insect having a wider range, where the conditions for its successful development are favorable, becomes greatly multiplied. The eggs are consequently deposited over a greater area of territory, and if the *succeeding year prove wet and favorable to the growth of the worms, we shall have the abnormal condition of their appearing on our higher and drier lands*, and of their marching from one field to another * * * * * * * Thus the fact at once becomes significant and explicable that *almost all great Army-worm years have been unusually wet, with the preceding year unusually dry, as Dr. Fitch has proved by record*. The appearance of the insect last summer in the West forms no exception, for the summer of 1868 was unusually dry and hot, while *that of 1869 was decidedly wet*."

In his eighth report (1876) he reaffirmed the same view, with emphasis. "*It is a well established fact that all great Army-worm years have been unusually wet, preceded by one or more exceptionally dry years*; and the widespread appearance of the insect in 1875 formed no exception to the rule. The explanation of this fact originally given by Dr. Fitch, *is beyond doubt correct in the main, but needs further elucidation*."

Here, then, we have his assertions based upon his own investigations during two Army-worm years, that "*it is a well established fact* that all great Army-worm years have been unusually wet." In 1880 all this evidence, so positively affirmed, is thrown aside. Dr. Fitch's theory, formerly pronounced correct in the main beyond doubt, is also scouted as erroneous. He even adds that "the view that the Army-worm has its proper home in the wild grasses in the swamps, as Dr. Fitch has assumed, must also be considered erroneous." An opinion which he affirmed in his former writings.

When we find by new evidence that an opinion formerly given is incorrect, candor requires that we should abandon it and acknowledge our error, and Prof. Riley is generally free to confess the changes in his own views, though on this particular point not so fully as justice to Dr. Fitch required. But the point we desire to urge in bringing forward these facts is this,—that as Prof. Riley expressed his opinion so positively heretofore, based on a much larger amount of evidence than he has for his present view, and as his changes in reference to many of the most important characters and habits of the species have been so repeated and radical, can we feel satisfied with his present views in reference thereto? And more especially are we disposed to hesitate when we find his new views based upon such slender evidence, and differing in some most important respects from those expressed by Prof. Comstock. But it is proper to state that Prof. Comstock also remarks in his article in the Farmer's

Review, July 8, 1880, that he does not feel implicit confidence in Dr. Fitch's theory, but he adds the very significant clause—"It is worthy of note, however, that in most instances the localities infested by the worm this year are in the *vicinity of extensive tracts of low lands*."

As to the last point, we are inclined to hold, as we always have done, the same view that he expressed in 1870, because the *facts* sustain it.

The year 1854 was wet in Ohio, as the testimony of Mr. Kirkpatrick shows. Schott's Rain Tables not only confirm this, but show it was a wet year in all the Northwest.

That the spring of 1861 was not only wet but cool in Illinois and the Northwest is seen by reference to the "Record of the Seasons" in the Prairie Farmer of April and May, 1861, shown by the following extracts:

Douglas Co. Ills., April 1. "On the 25th and 26th ult. we had the heaviest rain I ever witnessed, and the most water fell. Yesterday (March 31st) it rained very hard. It seems to be a gloomy prospect for farmers. Low, heavy clouds roll over, and everything seems to indicate a backward spring."

Correspondents at Andover, at Kendall Co., and at Fair Haven, Ills., of same date speak of rains.

"Lee Co., Ills., April 6. The weather here to-day is cold and rainy. It has been so more or less during the week."

"Kankakee Co., April 1. The land is flooded with water. April 6. Since writing the foregoing it has rained most of the time."

"DeWitt Co., Ills., April 8. Very wet."

"Ottawa, Iowa, April 6. Raining at the present writing."

"Carroll Co., Ills., April 11. We have had rainy weather with sunshiny intervals for two weeks past."

"Pana, Ills., April 4. Rained here every day for a coon's age; to-day is chilly, but it has not rained yet."

And this goes on until the close of April. The following records of annual rain-fall in the East also correspond with what is well known to have been the fact in the West:

Burlington, Vt.,	avg	....34.15	inches,	1861....42.56	inches
Boston, Mass.	"	....44.99	"	1861....50.07	"
Providence, R. I.	"	....41.54	"	1861....44.25	"
Pen Yan, N. Y.	"	....28.42	"	1861....32.74	"
Marietta, Ohio	"	....43.70	"	1861....46.41	"

In the West the chief rain-fall of this year was in the spring, many of the stations, taking the whole year, not rising above the average. To the fact that the spring of 1869 and 1875 was wet, Prof. Riley bears testimony in the extracts already quoted.

But it is a somewhat singular confirmation of Dr. Fitch's theory that at New Bedford, the only monthly record we have, the rain-fall in June, 1817, was more than double the average (Blodget's Climatology, 58 and 81.)

The year 1816 was dry, but was unusually cold, being equalled (during the first half of the century) only by 1812.

The facts, therefore, so far as they can be ascertained, are largely in favor of Dr. Fitch's theory.

REMEDIAL AGENCIES.

Fortunately for our farmers nature has provided a number of natural enemies to the Army-worm, that assist very materially in keeping it in check.

Natural Agencies.

The most important of these are the insect parasites which attack the worms in great numbers when they appear in marching armies. In fact, so rapidly are these parasites developed, that in the great Army-worm years, as a general rule, two-thirds or more of the worms collected for study are found to be parasitized; such at least was the case with those collected by Prof. Riley in 1869. There are several species of these parasites, some of which are dipterous insects, others hymenopterous.

THE RED-TAILED TACHINA FLY—(*Nemoræa leucaniæ.*) Kirk.

This is a true two-winged fly, resembling in form and size the common house-fly, or more closely the blow-fly or flesh-fly, but may be distinguished from these by the color, black and gray with a satiny lustre on the hinder part of the body, and the last segment of the abdomen dull red. It differs from the common fly in having the bristles of the antennæ simple or naked and not feathered; and by other characters mentioned in the description which we give below.

As nature has not furnished it with a piercer at the end of the tail, as are the hymenopterous parasites, with which to pierce the body of its victim and deposit its eggs within, it must of necessity place them on the outside of the worm.

The place selected is the back of the first three or thoracic segments, a spot which instinct probably leads it to know the worm is unable to reach with its jaws. Here they are firmly glued to the skin by a kind of liquid cement secreted by the fly, which soon hardens, and which, as it is insoluble in water, prevents them from being washed off by the rain. So firmly, in fact, do they become attached, that it is impossible to remove them without destroying them. They hatch out about the time the worm reaches its full growth and hides away to enter the pupa state and undergo its transformations. Soon after their exit the maggots work their way into the body of their host, just when and how is not positively known, but evidently just about the time the caterpillar settles into position to pupate. Mr. Walsh says, "they uniformly devoured the larva before

it transformed into the pupa state." This may be the general rule but does not correspond exactly with my observations, for the pupæ cases were very distinct in my parasitized specimens, from which this fly was reared. Mr. Walsh says that "the time for the entire transformation of such as I experimented upon from egg to fly was from fifteen to nineteen days." The larvæ of these flies are as a matter of course, maggots; the pupæ resemble rather small flattened, mahogany-brown beans with the ends docked. The following description is that originally given by Mr. Walsh, though Kirkpatrick had previously named it and given a brief description:

Nemoræa leucaniæ, Kirk.
Syn.—*Exorista leucaniæ*, Kirk. Ohio Agl. Rep., 1860, 358.
Osten-Sackenii, Kirk, l. c.
Senometopia militaris, Walsh, l. c.

"Length .25 to .40 inch, or from 6 to 10 millimetres, the females not exceeding .30 inch. Face silvery, with lateral black hairs only on the cheeks, on the top of which is a black bristle. Front–golden olive, with a black central stripe and lateral black convergent hairs. Occiput dusky. Labium brown, with yellowish hair. Maxipalps, rufous. Eyes cinnamon-brown, covered with very short dense whitish hair. Antennæ, two basal joints, black with black hairs; third joint flattened, dusky, and from two and a half to three times the length of the second joint; seta, black. The entire hinder part of the head covered with dense whitish hair. Thorax glabrous bluish gray, lighter at the sides, and with four irregular black vittæ, and black hairs and bristles. Scutel reddish brown, whitish behind, glabrous, with black hairs and bristles. Pectus black, glabrous, with hairs and lateral bristles. Legs black, hairy; thighs, dark cinereous beneath; pulvilli cinereous. Wings and alulae hyaline; nervures, brownish; halterers, opaque greenish white. Abdomen, first joint black; second and third opalescent in the middle with black and gray, and at the sides with rufous and gray; last joint rufous, slightly opalescent at base with gray; all with black hairs and lateral bristles. Beneath, the first joint is black, the others black, margined with rufous, all with black hairs. In the male, the space between the eyes at the occiput is one-seventh of the transverse diameter of the head; in the female it is one-fourth. The colors of the abdomen sometimes 'grease' and fade in the dried specimen."

The Yellow-tailed Tachina Fly—(*Exorista flavicauda*. Riley.)

This is another fly similar to and comprised in the same group as the former. It is decidedly larger than *N. leucaniæ*, and the head is broader than the thorax. The following is Prof. Riley's original description:

Exorista flavicauda—Riley: "Length 0.35 to 0.50 inch. *Head* broader than thorax; face silvery white, the cheeks inclining to yellow, with lateral black hairs extending to near the base of antennæ, and one stiffer and longer bristle at the top of cheeks; front, dusky, ferruginous, with two rows of black converging bristles, divided by a broad depressed stripe of a brighter ferruginous color

and without bristles; occiput bright ferruginous; labium ferruginous with hairs of same color; maxipalps rufous; eyes, dark mahogany brown, and *perfectly smooth*; antennæ, two basal joints rufous, with black hairs, third joint flattened, dusky, and thrice as long as second; seta black; entire hinder part of the head covered with dense white hairs. *Thorax* more decidedly blue than in *leucaniæ*, *broader* (instead of narrower) in front than behind; the vittæ less distinct; scutel of same color as thorax. *Abdomen* stout and more cylindrical than in *leucaniæ;* first joint dark bluish-gray, becoming darker along the middle, at sides and at lower border; third joint like second above, but golden gray at sides (not rufous); last joint *entirely* yellow or pale orange, with no other color but a few black bristles around anus. *Wings* more dusky than in *leucaniæ;* alulæ, opaque bluish-white. *Legs*, black; pulvilli pale yellow. Space between eyes at occiput fully one-third the width of head."

It is possible that other allied species may be found attacking the Army-worm, but so far I believe these two are the only ones discovered.

Microgaster militaris. Walsh.

FIG. 5.—Microgaster militaris.

This little species, not exceeding the tenth of an inch in length, is a four-winged hymenopterous species, the form of which is shown in Fig. 5. It is black, with clear wings and rufous or reddish legs. The larvæ of this little species often infest the caterpillars in large numbers, several residing in the body of one worm. The worms infested by this species show their parasitized condition by ceasing to eat, remaining sedentary, sluggish and apparently paralyzed, in one place. They become too feeble and too much diseased even to enter the ground to pupate. At this stage, when the worm would be ready to go under ground if it were able, the little parasites issue from the body, boring their way through the sides, and spin a mass of cottony silk, in which each forms a little cocoon, closely resembling an insect egg; in fact, the mass is most generally taken, by the unscientific observer, to be a bunch of insect eggs.

The following is the original description:

"Length of body, .07-inch, or two millimetres; head, black; palpi, whitish; antennæ, fuscous above, light brown beneath, towards the base; thorax black, polished, with very minute punctures. Wings, hyaline; nervures and stigma, fuscous; lower nervure of marginal, and exterior nervure of second submarginal cellule, entirely obsolete. Lower nervure of third or terminal submarginal cellule, hyaline; legs, light rufous, posterior pair with knees and tips of tibiæ fuscous; abdomen, black, glabrous, highly polished; ovipositor, not exserted."

Lest this busy and brave little parasite should multiply so rapidly as to exterminate the "Army-worm and other vegetable-eating caterpillars, and thus disturb the counter-balance between animal and vegetable life," Nature has furnished a check upon this increase in the shape of two still more minute hymenopterous parasitic species belonging to the Chalcid family. These are described by Mr. Walsh as follows:

Glyphe viridescens.

"Length of body, .07-inch, or not quite two millimetres. General color, dark green verging to black. Head finely and densely punctured; palpi whitish; eyes black; antennæ light brown, the basal joint received in a shallow, wide longitudinal depression. Thorax finely and densely punctured; legs yellowish white; tips of tarsi dusky; wings hyaline; subcostal nervure brown and prolonged on the costa to the extreme tip of wing. Abdomen black, glabrous, polished, flat above, convex beneath, so as in those individuals with acuminate anus—which I take to be females, but which Wilkinson takes to be males—to appear almost triangular when viewed in profile."

Hockeria perpulcra. Walsh.

Length .09-inch, general color black Head covered with dense largish punctures, which in certain lights show a golden silvery radiance; deeply emarginate behind, at an angle of 90°, so that its longitudinal is scarcely one-fifth of its transverse diameter. Antennæ, which are inserted immediately above the mouth, have their first joint equal to one-half the sum of their other joints, and are received in a narrow, deep longitudinal depression; eyes, black; thorax punctured like the head, above and beneath, with the mesothoracic scutel large, much rounded above, and obtusely pointed behind. Prothorax transverse before and behind, with the anterior angles a little rounded, and the posterior ones acute, slightly prolonged backwards; wings hyaline, subcostal nervure brownish, extending more than three-fourths of the way to the tip; ramus very short and widely-colored; legs with the tips of the tibiæ, and the tarsi, obscure whitish; the posterior coxæ over one-half the length of the posterior femora, which last are incrassated so that the transverse diameter equals one-third the longitudinal; both coxæ and femora of the posterior legs have the appearance on them of short, dense, whitish hair. Posterior tibiæ truncate at tip, with no vestige of spurs. Abdomen ovate, glabrous, first joint equal to three-fifths of its entire length, and highly polished; intermediate joints very narrow, with the appearance of short, whitish hairs; the last joint acutely pointed behind, and at its base, when viewed in profile, only one-half the diameter of penultimate joint, but set on a line with it above."

The following species of Ichneumon flies are also found to be parasitic on the Army-worm, and, like others, were first observed and described by Mr. Walsh, who made this group of insects a special study:

I give his original descriptions:

Mesochorus vitreus. Walsh.

"Length of the body .08 inch (two millimetres,) to .14 inch (three millimetres); the small specimens being parasitic on the Army-worm and the large one captured in Rock Island county. Male, general color light rufous. Eyes and ocelli black, antennæ fuscous, except toward the base. Upper surface of thorax in the larger specimen fuscous; intermediate and posterior tibiæ with spurs equal to one

fourth of their length, posterior knees slightly dusky, tips of posterior tibiæ distinctly dusky. Wings hyaline, nervures and stigma dusky. Abdomen translucent, yellowish-white in its central one-third; the remaining two-thirds piceous black, with a distinct narrow yellowish annulus at the base of the third joint. In the larger specimen, which seems to be immature, the basal abdominal joint and the articulations of the terminal joints are light rufous. Appendiculum of the abdomen composed of two extremely fine setæ, thickened at their base, whose length slightly exceeds the extreme width of the abdomen.

The female differs from the male in the head, from the mouth upwards, being piceous. The thorax and pectus are also piceous black. Abdomen as in the smaller male. Ovipositor, which is dusky, slightly exceeds in length the width of the abdomen."

Pezomachus minimus. Walsh.

"Length of body, .07 to .1 inch (2 to 2½ millimetres). Male—General color piceous; eyes black; antennæ black, except toward the base, where they are light rufous; legs rufous, hind legs a little dusky. Abdomen narrowed; second, and sometimes the third joint annulate, with rufous tip. The female differs from the male in the thorax being almost invariably rufous, and in the first three abdominal joints being generally entirely rufous, with a piceous annulus at the base of the third, which is sometimes absent. The abdomen is also fuller and wider. Ovipositor dusky; equal in length to the width of the abdomen. No vestige of wings in either sex, and the thorax contracted and divided, as in *Formica*."

The larvæ of this species issue from the body of the worm and spin upon its skin minute cylindrical cocoons, regularly arranged in a mass and enclosed in floss.

It is preyed upon by a minute Chalcis-fly, described as follows:

Chalcis aleifrons. Walsh.

"Length of body, .08 inch, or two millimetres. General color, black. Head punctured; antennæ brown, lighter toward the tips. On the face a greenish white triangle, the apex of which commences a little above the insertion of the antennæ, extends to the outer corners of the mouth, and incloses on its lower margin, immediately above the clypeus, a round black spot. Clypeus greenish white, fuscous on its basal margin, and with a black spot at tip. Thorax densely punctured. Wings hyaline; subcostal nerve fuscous for three-fourths of the distance to the tip, as also its ramus. Costal nervure of the lower wing also fuscous for two-thirds of its length; all other nervures hyaline. Posterior coxae incrassated; spurs obsolete; knees, tibae, and tarsi of anterior and intermediate legs greenish white. In the posterior legs, the trochanters, a spot on the thighs above, an annulus near the base of the tibae, the tips of the tibae and also the tarsi are greenish white. Extreme tips of all the tarsi fuscous. Abdomen glabrous, polished, equal in length to its peduncle."

In addition to the foregoing minute species, the following large Ichneumon-fly has been bred from the Army-worm. This species, instead of piercing the worm and depositing its eggs in the body, as do the other species described, attaches them by a slender peduncle. The grub, soon after it is hatched, works its way into the interior of the body.

Ophion purgatus. Say.

"Body pale honey yellow, somewhat sericeous; antennæ rather longer than the body; orbits yellow, dilated before, so as to occupy the greater part of the hypostoma; ocelli, large, prominent, wings hyaline; stigma slender; first cubital cellule, with two opaque, subtriangular spots; no areolet; metathorax with a single, raised, rectilinear, transverse line near the base. Length 7-10 of an inch."

The following species has also been reared in considerable numbers from the Army-worm:

Ichneumon suturalis. Say.

Ferruginous; scutel yellow; sutures black.

Body pale ferruginous; antennæ black beyond the middle; trunk with black sutures; scutel more or less tinged with yellow; wings tinged with ferruginous; carpus yellowish; nervures blackish; central cellule pentangular, the side on the radial cellule rather smallest, basal and apical sides longest, not parallel; metathorax with slightly elevated lines in the form of an H; tergum with the apical sutures not black; basal segment with two slightly elevated longitudinal lines; tibae—posterior pair black at tip; venter—basal segment black; sutures not black; oviduct not longer than the breadth of the anal segment. (Say.)

Flint's edition of Harris' work mentions and figures two species of Ichneumon flies which prey upon the Army-worm, but does not name or describe them.

Besides these valuable aids in keeping this pest in check, several predaceous beetles have been observed feeding upon them. Prof. Riley mentions ten which have been detected at this good work, as follows:

Cicindela repanda, Dej.
Calosoma externum, Say.
Calosoma calidum, Fabr.
Pasimachus elongatus, Hec.
Harpalus caliginosus, Fabr.
Elaphrus ruscarius, Say.
Calosoma scrutator, Fabr.
Colosoma wilcoxii, Hec.
Amara angustata, Say.
Harpalus pennsylvanicus, Deg.

Among the feathered tribes the Rice Bunting, Bobolink or White-winged Black-bird (*Dolichonyx oryzivorus*) is perhaps the most valuable aid in destroying these worms. So common an occurrence was it in past years for this bird to appear in flocks in Army-worm years in Southern Illinois, that it received the name among the people of that section of the "Army-worm bird." Other birds and domestic fowls also eat them with avidity.

I have observed hogs following them across open places and devouring great numbers.

But the numbers thus killed are, after all, small compared with the number destroyed by parasites.

Artificial Remedies.

That it is possible to protect a field from a marching army of worms, by ditching, has long been known and practiced. Care must be taken that the side of the ditch toward the field to be protected is perpendicular, or in firm clay it should slope under slightly. Holes a foot or two deep should be dug in the bottom of the ditch at intervals of about a rod. The worms attempting to ascend the side and failing, wander along it seeking for some point where they can scale it, and tumble into these holes. Here they may be destroyed by burning straw or leaves upon them, or by covering them with earth that is well pressed upon them, by pouring coal oil, hot water, etc., upon them. In some sections the farmers, instead of digging holes in the ditch, draw a log through, thus crushing the worms, and at the same time keeping the side smooth; sometimes fire is kept in the ditch, but if the worms are very numerous they soon extinguish it. The best method of killing them will depend largely upon the number and the surrounding conditions; knowing the fact that a ditch, with the side next the field to be protected perpendicular, will keep the worms back, the farmer can readily devise plans to kill them in accordance with the means at hand.

It is said that planks placed on edge and fitted end to end, if smeared on the upper edge with kerosene or coal-tar, will prove an effectual bar to them. The expense of this method is the chief objection to it, and if the worms are very numerous they may even pile up to the top of the board and thus bridge their way over it.

On Long Island their march was checked the past year in some places by sprinkling the grass in front of them with a solution of Paris-green. In other places London-purple was used in the same way with success, as we learn.

If the worms originate in a field, as a meadow, or have obtained possession of it and spread themselves over it, there is no practical way of destroying them and saving the crop. Topical applications are utterly useless and a waste of time and money. Running a heavy iron roller over the field is one plan recommended; but heavy iron rollers are to be found on but comparatively few farms, and if they were, a few trials would suffice to convince any one that but a comparatively small portion of the worms would be destroyed by this means.

The most effectual remedy so far suggested is to burn over the meadow or field early in the spring, the time depending on the latitude. In Southern Illinois this should be done about the middle or latter part of March in ordinary seasons; in the central part of the State about two weeks later; and about the middle of April in the northern section. It is probable that burning in the winter will have the same effect, as it will destroy the old grass in which the female moth prefers to deposit her eggs, and thus drives them off to hunt a more appropriate place.

But the fact that the insect appears in injurious numbers only at irregular periods requires this to be done annually unless farmers can find some means of foretelling their probable appearance Here then we see the importance of ascertaining, if possible, the climatic conditions under which they are most rapidly developed, and their method of passing the winter. As is the case with the Chinch-bug and numerous other species, two favorable seasons are necessary to develop this insect in injurious numbers. This is one important fact we have to start with; another, shown by experience and now admitted by all, is that the year preceding their appearance is always a dry year. It will therefore be necessary for farmers to burn over their fields only in winters or springs following dry years; and fortunately the same rule applies to the Chinch-bug and other species as well as the Army-worm. A more thorough study of the relation of the species to climatic conditions may possibly enable entomologists to still farther limit these conditions. For example, they may yet find that its undue development depends largely upon the character of one or two of the autumn months. Be this as it may, the fact that it appears only after a dry year, if generally known by farmers will serve to limit their precautionary measures, according to the rain record I give elsewhere in this report, to two years at most out of seven.

Before closing this article I may add, that in my opinion, when the worms appear in a meadow in great numbers, sufficient to destroy it, the best thing that can be done is to plow them under as soon as discovered and while young, and plant the field in some other crop. This will be the most effectual remedy that can be adopted, and will in the end be the cheapest.

NEW CORN INSECT—*Diabrotica longicornis.* Say.

During the past season the corn in certain sections of Northwestern Illinois was found to be withering and dying, without any apparent cause. Even in fields which were clean and well cultivated, and the soil rich and fertile, this was observed to an extent indicating a loss of at least one-third of the crop. For some time this was a mystery which the farmers were unable to explain. At length Dr. Boardman, of Stark county, who resided in the section where this occurred, made an examination in order to find out, if possible, the cause of this phenomenon. The following, from a letter written by him to Prof. French, will show the result. He says:

"I address you at this time in regard to the larvæ of some unknown insect which I find working on the corn. Since my return from the State Field-meeting (of Natural History Association), numerous complaints have been made to me in regard to a worm that was preying upon the roots of corn, and to-day, having the first leisure moment that I have had, I visted the infested fields. The field examined was a fine, rich, level prairie, thoroughly underdrained with tile, and has been cultivated in corn for a number of years. The ground was clean and the crop had been well attended. The corn was a fair growth, and had just begun to ear. At first, one would not think there was anything amiss with it, but on closer inspection I could see that many hills were withering, and on taking hold of them, they pulled up very easily, and the fibrous roots were found eaten away. A closer examination revealed hundreds of small white worms about half an inch long and the size of a No. 5 Klager-pin. The corn had thrown out its first row of brace-roots, and in these I found numerous worms at work. Some hills that had been attacked earlier had not developed brace-roots, but had thrown out another set of fibrous roots from the stalk, and these had been attacked by the worms. I thought the worms were the larvæ of some Scarabæidæ, but could not determine. The field examined contained eighty acres, and had a large pasture adjoining it on the west. The damage in this field will, I think, amount to at least one-third of the entire crop. I examined several hills that appeared as yet unaffected, but found the worms in the brace-roots."

Further examination proved that the culprit was the larva of a little plant-beetle, very closely allied to the well known Striped Cucumber-beetle (*Diabrotica vittata*), which will be found described and figured on page 165 of my first report.

Diabrotica longicornis. Say.

The perfect insect or beetle is decidedly smaller than the Striped Cucumber-beetle, being usually rather less than one-fifth of an inch long, the width scarcely equaling one-half the length. The head slightly narrower than the thorax; that part in front of the eyes slightly prolonged; usually a slight linear, longitudinal indentation between the eyes. Antennæ arising very close together, subserrate and longer than usual in this genus, reach back nearly or quite to the middle of the elytra. Eyes prominent, oval, black. Thorax narrower than the elytra, subquadrate, very slightly broadest near the front, width about equal to the length; an impressed spot each side rather behind the middle. Elytra with the sides straight two-thirds their length, widest behind the middle; each with four or five dim striæ, in which are minute very shallow punctures. Posterior thighs swollen.

Of a uniform, pale, dull, greenish-yellow or rather greenish-ocher color, without spots or stripes. Sparsely covered with very short hairs. (From specimen before me).

The original description as given by Say, who found it near the Rocky Mountains in what was then Arkansas Territory, is:

"Body pale greenish; eyes blackish; antennæ as long as the body; second and third joints conjointed, shorter than the fourth; thorax subquadrate; two dilated, oval, impressed spots placed rather behind the middle; elytra irregularly punctured; three or four obsolete, elevated lines, of which the exterior one is largest, and colored by a brown fillet which does not attain the tip; a brown common sutural line. Length less than one-fifth of an inch."

The larva is slender and similar to that of the Striped Cucumber-beetle, about one-fourth of an inch, or a little more, in length; the front part of the body more slender than the rest, the head quite small; body about as thick as an ordinary pin and slightly flattened. Skin smooth or with but few very minute white hairs. General color white, with a slight yellowish tinge; the head, feet, cervical shield and tip of the rounded anal segment brownish. They are active, crawling over objects almost as readily as caterpillars, even up the sides of the glass in which they were placed.

(For this description of the larvæ I am indebted to Prof. French, to whom the specimens were forwarded.)

The insect is not an uncommon one throughout the State, and in fact in the West, but hitherto it has not been known to be injurious to any useful plant, but it is possible that a closer examination may show that much of the injury to corn which is attributed to the dry weather is due to the attacks of this little insect.

The perfect insect feeds upon the pollen of various composite flowers. It appears to be at least two-brooded in a season, and probably passes the winter in the pupa state in the ground.

The only remedies so far suggested are rotations of crops, so that corn may not be planted on the same ground two successive years; and clean culture.

In the foregoing, with the exception of the description of the perfect insect, I have followed Dr. Boardman and Prof. French, who studied the species with some care during the past season.

My own opinion, based chiefly on analogy, is that the insect is not likely to prove very troublesome; at least permanently so. While it doubtless lives in the larval state on the roots of plants, I think it more than probable that favorable conditions in the section mentioned have caused its development in unusual numbers, and in consequence its attack upon the corn.

If the season is favorable, the ground properly cultivated and the growth of the corn strong and vigorous, I think it will not be apt to suffer very seriously from the attacks of this species; that this will only occur in rarely exceptional cases such as that described by Dr. Boardman. Still, I may be mistaken, and therefore it is well to be on the watch for this foe, for whose history we are indebted to Dr. Boardman and Prof. French.

THE RELATION OF METEOROLOGICAL CONDITIONS TO INSECT DEVELOPMENT.

That meteorological conditions have a strong bearing on the increase and decrease of the number of insects, is a fact well known not only to scientists, but to every careful observer. Every farmer is well aware of the fact that insects are more abundant in warm dry weather, than in cold wet seasons. As a general rule the increase in insect life is more marked in unusually warm and dry years, than in those of the opposite character. The years of greatest drought are those in which insects have been most abundant and injurious, especially when those years have been accompanied, as is usually the case, by more than ordinary heat.

Even those dry years, during which the temperature has fallen below the average, have generally been marked by an increase in insect life, or their influence in this direction has appeared in the following season.

As the lack of sufficient moisture in such seasons weakens the plants and renders them less able to withstand the attacks of their insect foes, the injury is proportionally greater than it would otherwise be.

Although a knowledge of this fact is important in the study of insect life, it is too general to be of much practical value, unless meteorologists could predict, with greater certainty than at present appears to be possible, the character of the coming year.

It is important, therefore, to examine into, and if possible point out more particularly this relation; in other words, to ascertain if possible how far this increase in insect development is due to a lack of moisture, and how far to increased temperature, to what extent it is affected by the character of the winter, and also that of the summer months, the injurious species that increase most rapidly under the favorable climatic conditions, and those whose numbers appear to be least affected by the changes.

It is possible that when this subject has been more thoroughly studied, the entomologist may be able to fix upon the particular month, or limited portion of the year, whose character determines the status of particular species the following season.

It is already known that some of the most notedly injurious species require two consecutive favorable seasons for their development in the great numbers sometimes seen. This is especially true

of such species as produce but one or two generations in a ye as the Locust, Chinch-bug, Hessian-fly, Army-worm, etc. On other hand the plant lice and other insects that produce a nu of broods in a year are often developed in enormous numbers single season; yet it was the opinion of some close observe England that the meteorological condition of one or two au months determined to a great extent the status of the Hop the following season.

In the course of my entomological investigations, especial studying the history and habits of the Chinch-bug and We Locust, I have found the meteorological factor constantly appea I concluded, therefore, to make a more thorough examinatic the influence of climatic conditions on the development of species than had been heretofore done. The result in referen the latter insect is not what was to be expected, and cann considered as satisfactory, but it is unnecessary for me to say in regard to it, as Illinois does not suffer from the incursio this pest. On the other hand, this attempt in the case o Chinch-bug has brought to light some new and interesting which may ultimately be of use in aiding us to counteract i crease, and to a great degree prevent its injuries.

For the purpose of this investigation I selected Illinois an immediately adjoining portions of Iowa and Missouri, first, be the history of the species has been more thoroughly written u this section than any other; and secondly, because the meteor cal records, though incomplete, are fuller for this section tha other of the area infested by this pest. Confining my investig to this section, excluding the Cairo record as not belonging t same limited climatic type, and rejecting the early Sandwich r as doubtful, I have, for the purpose of ascertaining the rain pr tation, combined the rainfall records of the others and take average for each year. For the average from 1873 to 1877, I used the Signal Service records of Chicago, Dubuque, Daven and St. Louis, counting the year from January to December, so to correspond with the preceding portion of the series.

This series commences in 1840 with the Athens record.

For the temperature an average of different stations would fail to give a correct idea of the comparative annual or monthly means of different years, hence it was necessary to select as a standard a station as near the centre of the area as possible.

For this purpose the record of the station at Augusta, Hancock county, Illinois, was chosen, and for two or three missing years the temperature is estimated from two or three of the nearest stations by ascertaining the difference between the general average of the series of each.

The result is shown in the following tables:

TABLE I.

General average	38.30	.....	50.65	.....

In order to bring plainly before the eye the variations both of the rainfall and temperature in the different years, I have drawn curved lines as here shown; the dark line representing the rain-fall in inches, and the dotted line the temperature in degrees; the scale of each being marked at the left-hand margin. The rise or fall of the lines, from one perpendicular line to another as we move to the right, showing the increase or decrease in rain-fall and temperature from year to year, the years being marked at the top of the design. The general average of the annual rain-fall, 38.30 inches, is shown by the heavy dark horizontal line.

The points brought out by this graphic representation, to which I wish to call special attention, are as follows:

First.—The fact that the rain-fall series appears to be divided into cycles of seven years each. For example, if we commence with the year 1844, which is considered above the general average, and count to the right by sevens, we shall find that each seventh year was also above this average, to-wit: 1851, 1858, 1865, 1872.

of such species as produce but one or two generations in a year, as the Locust, Chinch-bug, Hessian-fly, Army-worm, etc. On the other hand the plant lice and other insects [redacted]

used the Signal Service records of Chicago, Dubuque, Davenport, and St. Louis, counting the year from January to December, so as to correspond with the preceding portion of the series.

This series commences in 1840 with the Athens record.

For the temperature an average of different stations would fail to give a correct idea of the comparative annual or monthly means of different years, hence it was necessary to select as a standard a station as near the centre of the area as possible.

For this purpose the record of the station at Augusta, Hancock county, Illinois, was chosen, and for two or three missing years the temperature is estimated from two or three of the nearest stations by ascertaining the difference between the general average of the series of each.

The result is shown in the following tables:

Table I.

Rainfall and Temperature.

Year.	Rainfall.	Variation from gen'l average.	Temperature.	Variation from gen'l average.
1840	37.46	—.84	52.90	2.25
1841	38.51	.21	50.11	—.54
1842	35.76	—2.54	50.88	.23
1843	40.93	2.63	47.07	—3.58
1844	48.17	9.87	51.11	.46
1845	43.04	4.74	50.86	.21
1846	44.90	6.60	52.24	2.59
1847	32.61	—5.69	49.15	—1.50
1848	44.22	5.92	51.13	.48
1849	38.49	.19	51.67	1.02
1850	40.69	2.39	50.53	—.12
1851	46.91	8.61	50.80	.15
1852	38.26	—.04	49.66	—.99
1853	34.83	—3.47	50.82	.17
1854	31.13	—7.17	52.79	2.14
1855	43.54	5.24	50.19	—.46
1856	31.89	—6.41	47.41	—3.24
1857	32.22	—6.08	47.66	—2.99
1858	48.49	10.19	50.40	—.25
1859	32.81	—5.49	49.52	1.13
1860	34.54	—3.76	52.90	2.25
1861	36.04	—2.26	50.97	.32
1862	46.30	8.00	49.63	—1.02
1863	34.36	—3.94	49.60	—1.05
1864	33.96	—4.34	49.34	—1.31
1865	42.11	3.81	50.83	.18
1866	37.29	—1.01	51.39	.74
1867	29.53	—8.77	52.35	1.70
1868	38.93	.63	51.66	1.01
1869	44.67	6.37	49.61	—.74
1870	29.90	—8.40	52.36	1.71
1871	32.86	—5.44	52.72	2.07
1872	38.58	.28	50.16	—.49
1873	35.13	—3.17	50.19	—.46
1874	33.75	—4.55	52.37	1.72
1875	34.86	—3.44	48.36	—2.29
1876	45.66	7.36	50.65	0.00
1877	39.09	.79	52.76	2.11
General average	38.30	.....	50.65	.....

In order to bring plainly before the eye the variations both of the rainfall and temperature in the different years, I have drawn curved lines as here shown; the dark line representing the rain-fall in inches, and the dotted line the temperature in degrees; the scale of each being marked at the left-hand margin. The rise or fall of the lines, from one perpendicular line to another as we move to the right, showing the increase or decrease in rain-fall and temperature from year to year, the years being marked at the top of the design. The general average of the annual rain-fall, 38.30 inches, is shown by the heavy dark horizontal line.

The points brought out by this graphic representation, to which I wish to call special attention, are as follows:

First.—The fact that the rain-fall series appears to be divided into cycles of seven years each. For example, if we commence with the year 1844, which is considered above the general average, and count to the right by sevens, we shall find that each seventh year was also above this average, to-wit: 1851, 1858, 1865, 1872.

The year 1872 apparently forms an exception, but in this case I have the record of but a single station, and this of doubtful authority.

In the records of other western sections which are at hand, this year is several inches above the general average. If we commence with 1876, which is considerably above the average, and count back (toward the left) by sevens, we shall find, as before, that each seventh year is also above the average, to-wit: 1869, 1862, 1855 and 1848; 1841 being on the average line.

If we commence with a year below the average, we find the same rule holding true in most cases; thus: commencing with 1842 and counting in the same way to the right, we find 1849, 1856, 1863 and 1870 all below the average line; 1877 is slightly above it. Commencing with 1840, we find 1847, 1854, 1861 and 1875 agreeing with the rule; 1868 forming an exception.

The evidence of a septenary cycle shown here is too strong to be ignored.

Secondly.—A careful examination reveals the further fact that this septenary period is divided into two sub-periods of four and three years.

This will be apparent if we commence with 1844, which is above the average, and count forward (to the right), the fourth and third years, alternately, being above the average line as a general rule; thus: 1848 and 1851, 1855 and 1858, 1862 and 1865, 1869 and 1872, and 1876. According to this rule 1878 should be below the average, 1879 above it, and 1880 and 1881 dry.

Thirdly.—The relation of the rain-fall to the appearance of the Chinch-bugs. As I have argued elsewhere, and as I believe is generally admitted, two successive dry years are necessary to the development of these insects in injurious numbers. According to this theory, as applied to our graphic delineation, the only years which could have been serious Chinch-bug years are the following: 1854, 1857, 1860 or 1861, 1871 and 1874 or 1875.

The chronological history of the species in the region designated, shows that although appearing in the intermediate years in limited localities in considerable numbers, the chief Chinch-bug years were 1850, 1854, 1871 and 1874.

As this does not sustain the theory with sufficient uniformity to establish the rule, let us see if we can find another factor which it is necessary to consider in arriving at a correct conclusion.

For this purpose, I now call attention to the line showing the annual variation in the temperature. The line showing the general average of the rainfall also stands for that of the temperature. Running the eye along the curve of temperature, we find that 1850 was below the average, 1854 above it, 1857 considerably below it, 1860 above it, 1864 below it, 1871 and 1874 considerably above it. According to this, it appears that the increase of Chinch-bugs depends on the combined influence of a decreased rainfall and high temperature. The year 1850 forms an exception, which might possibly be explained if we had the monthly or quarterly means of temperature and amounts of rainfall, as the low temperature and greater amounts of rainfall may have been in the latter part of the year. The years 1860 and 1861 were favorable for their

levelopment, and we find, by examining the history, that they did nake their appearance in the spring of 1862, in considerable numbers, but were cut off by the rains.

An examination of the line of temperature shows no such periodicity as that found in the rainfall curve; it is therefore impossible to predict, with any degree of certainty, whether a given future year will or will not be marked by the appearance of Chinchbugs in injurious numbers over the designated area. Judging from the periodicity shown by the rainfall curve, as before stated, 1880 and 1881 should be dry years, and if the temperature of the latter is above the average, we may, according to what has been already shown, expect these insects. A wet Spring may destroy them; otherwise we may expect them in injurious numbers. It is not our aim, in presenting these facts and conclusions, to bring forward any claims as a weather prophet, as our only object at present is to call attention to them, that they may be compared with future observations, in order to see whether this apparent periodicity is only accidental, or a meteorological law applicable to the area alluded to.

As the amount of rainfall has a very important bearing on the agricultural interests of our State, it will not be amiss for me to call attention to some other facts brought out by means of these and other similar curves.

As will be observed, the series commences with 1840 and ends with 1877, making 38 years. The general average annual rainfall for this entire series, as before stated, is 38.30 inches. In order to ascertain whether there has been an increase or decrease, we may divide the series into sections of different lengths, and, taking the average of these, compare them with one another.

Dividing the series into two sections, we find the average annual rainfall of these to be as follows:

1st. Sec.—1840 to 1858	39.58	inches.
2d Sec.—1859 to 1877	36.86	"

Dividing into three sections, the averages will be as follows:

1st Sec.—1840 to 1851	40.97	inches.
2d Sec.—1852 to 1864	36.79	"
3d Sec.—1865 to 1877	37.10	"

Dividing into sections of seven years each, so as to correspond with the septenary periods, the several averages will be as follows:

1st. Sec.—1842 to 1848	41.37	inches.
2d Sec.—1849 to 1855	39.12	"
3d Sec.—1856 to 1862	36.04	"
4th Sec.—1863 to 1869	37.26	"
5th Sec.—1870 to 1877	35.82	"

A single glance at these figures is sufficient to show that the rainfall in the latter part of the series is less than that of the earlier portion; in other words, that the rainfall has been decreasing.

When divided into two sections, the average rainfall of the latter half of the series is 2.72 inches less than that of the first half. When divided into three sections, the average of the last section is

3.87 inches less than the first. When divided into septenary periods, the average of the last is 5.55 inches less than that of the first.

So far, then, as the rain records of our State show, there has been a decided decrease. I may remark here, that this conclusion differs from that arrived at by Dr. Draper from his examination of the rain records of New York City and vicinity; but the rainfall in New York City, or at any point on the sea-coast, or larger lakes, cannot form a fair test in reference to the increase or decrease of rainfall in the interior part of the country. The only records by which this question can be properly tested are those of the interior of the country, where there can be an increase or decrease of forests, and where the effects of cultivation of the soil, the draining of swamps, ponds, etc., can be felt.

By forming curves of the seasons, Spring, Summer, Autumn and Winter, similar to that given in Figure 2, we gain a few additional facts in reference to the chief points now under consideration.

According to the theory advanced, and the rain and temperature curves of our figure, the year 1867 ought to have been a Chinch-bug year, but was not. The curves of the seasons for this year, being all low, would seem also to favor the advent of these pests. If we go back to 1866, we find that the Summer and Autumn of this year were above the average, which probably accounts for the non-appearance of these pests in 1867. The years 1871 and 1874 were marked Chinch-bug years, and we find that the Spring rainfall of these years was very light, and that the Summer and Autumn rainfall of the years previous (1870 and 1873), especially the latter, was very small. These facts accord precisely with the theory advanced, and what all who have had any experience with these pests would expect. As the curves have not been drawn to agree with the theory, or the theory adopted to correspond with the curves, but each formed independently of the other, this agreement tends to strengthen our faith in the meteorological records from which the curves were drawn.

It is proper for me to call attention here to what appears to be an error, that has obtained a place in Entomological, Agricultural and Statistical literature, and seems to have been, until I entered upon a thorough investigation of the subject, generally accepted as correct.

I allude to the estimated loss on the wheat crop by the Chinch-bug in 1864, made by Dr. Shimer, and that on the crop of 1871, made by Dr. LeBaron.

Dr. Shimer says, in his article on the subject, that "this insect attained the maximum of its development in the Summer of 1864, in the extensive wheat and corn fields of the valley of the Mississippi, and in that single year three-fourths of the wheat and one-half of the corn crop was destroyed throughout many extensive districts, comprising almost the entire Northwest, with an estimated loss of more than $100,000,000 in the currency that then prevailed."

By reference to the statistics for the years 1863, 1864 and 1865, as given in the Reports of the Agricultural Department, we find that the yield per acre of corn and wheat in Indiana, Illinois, Missouri, Iowa and Wisconsin was as follows:

YIELD OF WHEAT PER ACRE.

States.	1863.	1864.	1865.
Indiana	14.5	14.0	8.5
Illinois	12.2	14.3	11.0
Missouri	16.1	14.2	12.7
Iowa	14.0	12.2	14.7
Wisconsin	14.5	9.5	16.8

YIELD OF CORN PER ACRE.

States.	1863.	1864.	1865.
Indiana	24.2	29.0	40.6
Illinois	21.0	33.0	35.2
Missouri	32.0	26.8	39.0
Iowa	32.0	36.7	42.7
Wisconsin	27.0	31.0	41.5

Dr. LeBaron, speaking in his second report of the operations of the Chinch-bug in 1871, remarks that the spring wheat over the Northwest, "was reduced to not more than a quarter of the average crop."

The statistical reports of the Agricultural Department give the yield of wheat per acre for 1870, 1871 and 1872, over this region, as follows:

YIELD OF WHEAT PER ACRE.

States.	1870.	1871.	1872.
Indiana	11.0	12.0	12.4
Illinois	12.0	12.3	12.1
Iowa	12.5	10.8	12.6
Wisconsin	13.4	12.2	14.3

I presume the estimates made by these two parties were based on statements received from individuals and then applied to the whole region embraced. The statistics as given show that the crops of these two Chinch-bug years were about up to the average; in fact the wheat crop in Illinois was larger in 1864 and 1871 than in either the preceding or following year.

While I think the estimates made by Drs. Shimer and LeBaron were entirely too large, yet I am not disposed to cast them aside wholly because they do not agree with the statistics of the Agricultural Department. They were made by men of mature judgment, conscientious, and of scientific attainments; made in reference to a matter with which they were, in part at least, personally cognizant. Their guesses were about as good as the guesses upon which the crop estimates of the Department were made. That there is an error somewhere, and a very great one, is evident. I leave it with the reader to form his own opinion.

I am fully aware of the fact that a longer series of rainfall records may serve to show that the conclusion arrived at here in reference to the septenary cycles is erroneous, but we can only base our arguments upon such facts as are known; we are, therefore, justified in relying upon this conclusion until it is shown to be incorrect. We must again call the attention of the reader to the fact, that it is limited strictly to the area designated, as it is not claimed that it is true in reference to any other section, though possibly it may be.

Assuming it to be sufficiently established to justify us in attempting to use it practically in economic entomology, let us see how this is to be done.

The first and very important practical fact revealed is that we may expect at most but two Chinch-bug years in every seven, with the strong probability, amounting almost to a certainty, that there will not be two in succession. As heretofore stated, two successive dry years are necessary in order to develop this species in excessive numbers; the rainfall records seldom show three dry years in succession, hence the Chinch-bugs are not likely to appear in injurious numbers in two successive years. The years 1854 and 1855 may, perhaps, form an exception to this rule. It is possible that the second brood of the first year may be sufficient to excite alarm, but experience has shown that they do but little injury. We may, perhaps, with safety assume, as a general rule subject to occasional exceptions, that they will not appear more than once in excessive numbers during any of the septenary periods.

If the facts shown in reference to periodicity in our rainfall are confirmed by future investigations, and this periodicity shown to be a meteorological law of the area indicated, the practical advantage of this knowledge to our farmers is apparent to every one. By this knowledge they will be enabled to predict with a reasonable degree of certainty when to expect these insects, and can rotate their crops so as to suffer the least possible injury. This knowledge will also enable them to dispense with precautionary measures except in such years as are likely to be followed by the appearance of the bugs.

Experience has shown, and farmers are now becoming fully aware of the fact, that spring wheat and corn are the crops that chiefly aid in sustaining and developing this pest. Why corn should aid in this respect is easily seen, as it is the only extensive crop on which the second brood can feed. But why spring wheat should aid more in developing them than winter wheat is not so easily explained, but that such is the fact must be admitted. It may possibly be accounted for on the presumption that the climate of the spring wheat region is more congenial to them than that of the winter wheat area.

These facts, combined with a knowledge of the time when the dry seasons are to be expected, will enable the farmers to substitute other crops as far as possible in place of spring wheat and corn. Even if the conclusion in reference to periodicity in rainfall should prove erroneous, the fact that two successive dry years are necessary to develop this species in excessive numbers will suffice to give notice at least one season in advance and allow the farmers to adapt their crops to the circumstances. When a dry season comes and an ex-

amination shows that the bugs are on the increase, winter wheat, wherever it is possible to do so, should be substituted for spring wheat; and oats, as far as possible, for corn.

The uncertainty in reference to temperature will, perhaps, always prevent us from predicting with certainty that a coming year will be marked by the appearance of these insects, but we may say with assurance, that a wet year will not be followed by a Chinch-bug year. Although this is not all we desire to know in this respect, it is, nevertheless, a very important fact and may be used to manifest advantage by our agriculturists.

It is proper to remark at this point, that we have been speaking only of the rainfall over the whole area designated, and the general appearance of the Chinch-bug over the same area.

That these insects have appeared even in injurious numbers in limited localities in intermediate years, or times different from those indicated as possible Chinch-bug years, is certainly true. But, if the theory advanced is correct when applied to the area designated, as a whole it will probably prove true when applied to more limited localities. That is to say, if the meteorological record of a given locality within this area for a long series of years is examined, it will probably reveal the fact that there is a similiar periodicity in the rainfall, though possibly not septenary. If this is found to be true, then the farmers of that locality will have a guide by which to rotate their crops and to take precautionary measures.

It therefore becomes important for each section to keep a record, at least of the rainfall; for this will be of advantage not only in counteracting the Chinch-bugs, but numerous other species, and if a periodicity is ascertained will enable the farmers to adapt their crops as far as possible to the wet or dry seasons.

The relation of meteorological conditions to the appearance of the Hessian-fly has not been worked out thoroughly as yet; still, enough has been ascertained to indicate that as a general rule, though not without exceptions, it is most abundant in rather wet and moderately warm seasons. This is shown by examining on the chart the principal years of its appearance in Illinois, 1844, 1846, 1871, 1872, and 1877.

Warmth appears to be the chief element in developing the Aphides or Plant-lice, some species being more favored by a humid atmosphere, while others develop more rapidly in a dry season.

The Cut-worms are developed more abundantly in such seasons as increase the Army-worms, which, in their normal habits, are but Cut-worms, massing in armies and migrating being really an abnormal condition in their history.

Observation shows, as heretofore stated, that as a general rule those species which occasionally develop in such vast numbers require for this purpose two consecutive favorable seasons, though the characters of the seasons for the different species differ somewhat. That is to say, those which bring out one species are not the ones which bring out another. As examples of the correctness of this statement I have only to refer to the migratory locusts, the Chinch-bug, as heretofore shown, the Hessian-fly, the Army-worm, etc.

The Locust and the Chinch-bug require the same kind of seasons, that is, two successive dry years, the latter warm as well as dry;

consequently, when two such seasons prevail generally over the Northwest both species are apt to appear, as was the case in 1874. But the case is different with the Army-worm. This requires a dry Summer and Fall and, I am inclined to believe, also a dry Winter, followed by a cool and rather damp and cloudy Spring. The two most noted years of its appearance in this State were 1861 and 1875, each of which followed a preceding dry year, but in neither case was the year in which it appeared warm, 1861 being one of average temperature, and 1875 rather cold. The latter, which is the only one for which we have the records of the different seasons, was more than usually damp in the Spring and Summer.

While on the subject of meteorology, we present here, not as having any direct connection with entomology, but simply as bringing out some points of interest to the farmers of Illinois, and as bearing on the subject of meteorology, curved lines, showing the relation between the rainfall and the yield of wheat and corn, and the price of these commodities.

The upper dark curved or zigzag line indicates the rainfall for the years 1861 to 1877. The middle series, consisting of two lines, showing the yield and price of wheat, the solid dark line the average yield per acre, and the (red) dotted line the average price per bushel.*

The lower series shows the yield and price of corn; the solid line the yield, and the dotted line the price.

A comparison of the yield per acre of these grains with the rainfall shows very clearly that the wheat crop is less affected by the variation in the amount of rain than corn; the four years of greatest wheat yield are 1864, 1866, 1873 and 1877—the first was dry, 1866 was about an average year, 1873 was dry, and 1877 a little above the average. The small yield in 1867 corresponds with the great drought of that year, but the smallest yield was in 1876 when the rainfall was excessive.

The years of the series in which the yield of corn was about 34 bushels per acre are 1861, 1862, 1865, 1868, 1870, 1871, 1872, and 1875. Of these years the rainfall was below the average in 1861, 1870, 1871 and 1875—was about it in 1872, 1864, 1868 and 1872. The smallest yield was in the excessively dry and great Chinch-bug year, 1874; in the years 1863 and 1873 the yield was very small and these were dry years. 1869 and 1876 were excessively wet, and the yield was small, not exceeding an average of 25 bushels to the acre. The yield as given for 1871, I am inclined to think, is not reliable, the census returns having evidently affected the statistics of the Agricultural Department of the General Government, which we have followed.

The comparison of yield with prices is also worthy of attention, as it brings plainly to view a fact that is of importance to our farmers and grain buyers.

A slight glance at the wheat series is sufficient to show that the price is not governed by the yield; in 1864 the yield was large and the price also above $1.50; in 1865 the yield was only 11 bushels and the price only $1.09. In 1874, when the yield was but 11½ bushels, the price was only 60 cents. This indicates what we know to be true, that the yield *in Illinois* does not govern the price; but

* Cut not obtained in time. The reader can easily draw curves by the data given.

when we look at the corn record the case is reversed; the price in our State is chiefly governed, to a large extent, by the crop of our State. In almost every case as the yield goes down the price goes up, and *vice versa*, only two exceptions occurring in the entire series.

As means of reference and of such further comparison of seasons as the reader may desire to make, I insert here tables showing the average monthly rain-fall of Illinois, also for the seasons. The yearly average as given here will be found to differ slightly from that given in the preceding table; this is owing to the fact that some stations used for the former had to be omitted from these, the records I have at hand not giving the monthly rain-fall for them. I have thought it best to give them as they are, notwithstanding this variation:

Table III.

Average Monthly Rain-fall of Illinois.

Years.	January	February	March	April	May	June	July	August	September	October	November	December
1854	1.33	1.14	2.40	2.82	6.43	3.05	2.64	2.74	1.68	4.52	1.09	1.82
1855	9.24	.82	2.66	2.16	5.10	2.80	6.20	4.10	2.60	2.08	2.81	3.64
1856	.96	1.48	0.50	1.93	4.40	2.60	3.60	2.81	3.00	3.00	3.62	4.19
1857	.72	2.18	2.42	1.56	2.90	3.90	2.10	4.50	2.20	2.67	2.67	1.42
1858	1.82	1.76	2.85	5.17	8.10	5.80	5.90	3.00	3.70	3.60	3.76	2.98
1859	1.78	2.10	4.94	3.05	4.30	2.90	1.70	2.50	3.00	1.70	2.90	1.58
1860	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1861	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1862	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1863	3.13	2.98	2.71	1.87	3.40	1.45	3.87	2.37	3.07	3.79	1.35	5.50
1864	2.17	.80	2.12	4.39	1.79	2.29	4.89	1.72	3.42	2.13	3.59	3.02
1865	.30	4.09	3.91	4.79	1.67	4.49	5.94	4.88	6.42	2.56	.43	1.27
1866	2.47	1.17	2.68	2.33	2.40	3.30	4.16	4.20	6.84	2.89	1.09	2.91
1867	1.81	3.92	2.11	1.54	5.86	3.56	2.82	2.51	.95	1.06	1.90	1.39
1868	1.07	.79	5.52	5.07	6.32	2.78	2.41	3.13	5.63	1.23	3.28	1.70
1869	1.80	2.21	2.46	3.92	5.48	6.73	4.99	3.86	2.05	1.30	3.48	2.80
1870	4.59	1.11	3.82	1.48	1.60	1.99	2.85	3.58	3.36	3.65	1.63	1.70
1871	3.86	2.34	2.97	1.87	2.57	3.92	2.23	3.49	.82	3.60	2.56	1.96
1872	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1873	3.14	.58	.04	5.26	5.66	1.60	5.06	.88	2.30	3.87	1.56	5.61
1874	3.82	1.38	1.54	2.57	2.39	5.21	2.74	3.57	6.51	1.92	2.49	.79
1875	.64	1.92	1.96	2.47	3.69	6.42	5.60	2.19	3.95	2.48	.67	2.71
1876	3.48	2.98	4.82	3.48	4.41	6.13	5.49	4.72	5.69	1.38	2.51	.39
1877	1.36	.32	4.31	3.07	2.88	6.22	3.05	3.11	1.92	5.41	3.89	3.00

Table IV.

Average Periodic Rain-fall of Illinois.

Spring.	Summer.	Autumn.	Winter.	April to Septemb'r Summer Half.	October to March—Winter Half.	Yearly Average.	Years.
11.65	8.43	7.29	4.29	19.36	12.30	31.66	1854
9.92	13.10	7.49	13.70	22.96	21.25	44.21	1855
7.02	9.00	9.62	6.63	18.33	13.84	32.17	1856
6.88	10.50	7.54	7.32	17.16	15.08	32.24	1857
16.12	14.70	11.06	6.67	31.67	16.77	48.44	1858
12.79	7.10	7 60	5.46	17.95	15.00	32.95	1859
.....	.....	.....	.....	.....	.....	34.54	1860
.....	.....	.....	.....	.....	.....	36.04	1861
.....	.....	.....	.....	.....	.....	46.30	1862

Table IV.—Continued.

Spring.	Summer.	Autumn.	Winter.	April to Septemb'r Summer Half.	October to March—Winter Half.	Yearly Average.	Years.
7.98	7.69	8.21	11.61	16.03	18.46	35.49	1863
8.30	8.90	9.17	5.99	18.52	13.13	32.36	1864
10.37	15.31	9.41	5.66	29.19	12.56	40.75	1865
7.41	11.66	10.82	6.55	23.23	13.21	36.44	1866
9.61	8.89	3.91	7.12	17.34	12.39	29.53	1867
16.91	8.32	10.14	3.56	25.34	13.59	38.93	1868
11.86	15.58	6.83	6.81	27.03	14.00	41.08	1869
6.90	8.42	8.64	7.40	14.86	16.50	31.36	1870
7.41	6.94	6.98	8.16	14.90	17.29	32.19	1871
							1872
11.86	7.54	6.73	9.33	20.76	14.70	35.46	1873
6.50	10.52	10.92	5.99	21.99	11.94	33.93	1874
8.12	14.30	7.10	5.27	24.41	10.38	34.79	1875
12.71	16.34	9.58	6.85	29.92	15.56	45.48	1876
10.26	12.38	11.22	4.68	20.25	18.29	48.54	1877

Is it possible to find any remedy for this evil? Or in any way to affect the meteorological conditions so as to distribute more evenly the rain that falls, and to retain it and render it more useful?

We see by what has been said, and by the graphic delineation I have presented, that excessively wet years are about as injurious as excessively dry years; the former flooding the fields, while the damp atmosphere carries the fungus and molds everywhere, not only destroying the gathered fruits and vegetables, but attacking the living, sapping the very fountain of life,—the latter not only withering the struggling plants, but bringing upon them hosts of injurious insects to assist in the work of destruction. It is a striking illustration of the "struggle for existence." What can we do in this warfare, to assist struggling vegetation?

First, proper drainage will assist in carrying off the surplus water that accumulates in the level, depressed and low places in the wet seasons. This is a point which has been so fully discussed by others that it is wholly unnecessary for me to say anything further in reference to it.

Second, much can be done to attract, distribute and retain moisture in the dry years.

Tree planting in this connection has also been so often discussed that it is not necessary for me to do more than simply to mention it. There is one point only in reference to it that I will call attention to, and that is the mistaken notion that a covering of grass is as effective for this purpose as a covering of forest trees. Elaborate and thorough investigations recently made in Europe have shown beyond dispute that this is an erroneous idea; that forests are decidedly more effectual for this purpose than grass or any other kinds of vegetation, and that the evergreens or Conifera are more beneficial in this direction than deciduous trees.

But there are other means of assisting in this matter which, probably because they appear like small matters, have been overlooked by those discussing this subject.

The farmer who has a little rill, ravine or draw running through his field along which a line of shrubbery has grown up, when cleaning up his land, offended by the sight of this, is careful to clear it away lest he be charged with negligence and unthriftiness. The consequence is that when the rains fall the water is carried off rapidly, taking more or less of the soil with it. The warm sun coming out, soon dries up and evaporates the moisture. This is a great error. Every one of these ought to be carefully preserved by retaining the shrubbery if already there, or planting it if already taken away or wanting. Want of proper care in this respect more than counteracts, as I believe, the beneficial effect of all the trees that are planted.

Another method of assisting in retaining moisture is by forming ponds and surrounding them with shrubbery and trees. This might and ought to be carried on to an hundred fold greater extent than it is at present done. I believe it is possible to form ponds in many places in the interior of our State of sufficient extent to be used for manufacturing purposes, where now towns are almost wholly without water for this purpose.

DESCRIPTIVE CATALOGUE OF LARVÆ.

(*Caterpillars, Grubs, Slugs, Etc.*)

As a general rule farmers and horticulturists are not aroused to the necessity of counteracting their diminutive foes until they make their appearance in injurious numbers. It is therefore while they are in their most active state, while they are doing most injury. that they see them, and hence it is important that the characters by which they may distinguish them in this state should be given. That most insects pass through very marked changes during their existence, is now generally well known, and as we do not wish to repeat here what has been so often stated, and what will be found in my former reports, we will state briefly only what is necessary for present purposes. As a general rule, though having numerous exceptions, they are most injurious while they are in the larva or worm state, hence it is in this state they are most likely to be observed and to have attention called to them by the injury they do. But most of the systematic works on entomology describe insects in their perfect state: as wasps, beetles, butterflies, etc., and hence give but little aid to the farmer and horticulturist, who observe them in the larva state, and are unaware of what they are in the perfect state. It has been one object in my former reports, in speaking of injurious species, to meet this difficulty by describing their larval state; but the want of an arrangement to facilitate the determination of species in this state is yet sadly felt. To meet this difficulty in part, I propose to present here a kind of classification* of our most injurious species, based upon larval characters and habits; it is necessarily artificial, and the reader should not be led to suppose that those grouped together here will be found grouped together in the regular and natural classification, as found in systematic works, our only object being to assist in determining the species. There are many insects that undergo no marked changes in passing from the larval to the pupal state, and from the latter to the perfect state, as for example plant-lice and grasshoppers, and all other species belonging to the orders *Hemiptera* and *Orthoptera*. In such cases the only changes observable are increase in size and the acquisition of wings. These are therefore not included in the present grouping, my object being to confine present consideration to those insects that in their larval state can be called *worms* in the general and common acceptation of that term, and that in passing from this state to the perfect form, become true chrysalides or pupæ, and for a longer or shorter space of time are dormant.

*This has not been carried out.

The forms of the larvæ are very different in the different orders; some, as most beetles, being true grubs, sometimes with six small legs on the first three segments behind the head, while others are entirely footless. Others, as the larvæ of most *Lepidoptera* (butterflies and moths), are true caterpillars, possessing from ten to sixteen legs, and usually a very prominent head. Some larvæ are without any true head, resembling minute earth worms, while others are furnished with a prolongation like a rat-tail. These wide differences will enable us to separate them into large groups, easily distinguished from each other, but we shall find that in attempting to distinguish closely allied species, we shall have to descend to most minute details.

As it will be necessary to use certain scientific terms, to avoid much circumlocution, I will mention some here and explain them:

Stomata.—The little breathing pores along the lower part of the sides, one on each side of each segment.

Stigmatal line.—The line of the stomata or breathing pores.

Cervical shield.—The hard, horny crust on the back of the first segment.

Segments.—The joints or rings into which the body of the worm is divided. There are usually 12 besides the head; they are numbered from the front backwards, that next the head being number 1. The first three are the thoracic segments, the remainder, except the last, the abdominal segments, the last the anal or caudal segment.

True or thoracic legs.—Are the first six legs situated on the first three segments, two on each segment; they are jointed and provided with a claw at the tip.

Pro-legs or false legs.—Are the thick, fleshy legs with which one or more of the abdominal segments of caterpillars are provided.

Anal or caudal legs.—Are the thick, fleshy legs with which the last or anal segment is often provided, called also *abdominal legs.*

True head.—This term is used to designate the head when it can be readily distinguished from the joint or segment to which it is attached. It is usually horny, smooth and shining.

Dorsum.—The back or upper portion of the worm when in its natural position. As generally used, it includes about one-fourth of the surface of the body.

Sides.—These are the lateral portions of the surface between the dorsum and the venter; each side occupying about one-fourth of the surface.

Venter.—The under surface, including the portion to which the legs are attached.

Dorsal line or stripe.—A line or stripe running lengthwise along the middle of the back.

Piliferous spots.—Little spots, generally minute, slightly raised pimples, bearing one or more hairs.

Sub-dorsal—Signifies below, but close to the dorsum.

Fusiform.—Spindle shaped, sometimes applied to the general form of a larva.

I at first attempted to arrange the larvæ in groups by such prominent characters as could be most easily understood by unscientific readers, but found that our knowledge of the preparatory states of the species was not sufficient for this purpose. I have, therefore, fallen back upon the natural classification, depending on the characters of the perfect insects, but will give in tabular form an artificial arrangement by the larval characters of the species described in this report, so far as this can be done with our present knowledge.

The present report will include only the species of *Hymenoptera* and *Lepidoptera* found in Illinois which are known to be more or less injurious to vegetation.

The synopsis of the groups, so far as prepared, will be given at the commencement of each group or family. But I will give here the general arrangement—by larval characters—which I have adopted, but which I have not been able to follow out fully because of our lack of knowledge of the larval characters and habits of many species. Still, as it may be some aid to the reader in determining species by larval characters, I therefore insert it here:

A.—Larvæ with a true and distinct head.
B.—Possessing feet—always six or more.
C.—With more than six feet—always two or more abdominal pro-legs.
D.—With more than sixteen legs—more than eight being abdominal pro-legs. False caterpillars.....Sec. I.
DD.—With not more than sixteen nor less than ten legs—never more than eight and sometimes only two abdominal pro-legs. True caterpillars.....Sec. II.
CC.—With only six legs—always true legs on first three segments; sometimes a kind of anal leg is present, but never an abdominal pro-leg.....Sec. III.
BB.—Footless; possessing no visible or apparent feet or legs.....Sec. IV.
AA.—Headless,—or larvæ without a true or distinct head....Sec. V.

The reader must bear in mind the fact that this table is entirely artificial and will not group species according to their natural relations, being intended only as an aid in determining species by their larval characters.

Section I. This section includes larvæ with more than sixteen legs, not more than fourteen nor less than ten of which are abdominal pro-legs. It embraces only the Saw-flies (*Tenthredinidæ*) a family of Hymenopterous insects. In fact, there are a few species of the family which must be included in other sections, as they have less than sixteen legs; but it embraces all the species mentioned in this report.

Section II. This section accords very nearly with the natural classification, as it includes all of, and only, the true caterpillars or larvæ of Lepidopterous insects, and, therefore, corresponds in extent with the order Lepidoptera.

Section III. This is a very extensive section, and includes insects of several orders, but in the present report we shall have occasion to refer to but one family belonging to it—the Horn-tails, *Uroceridæ*—a family of Hymenopterous insects.

Order HYMENOPTERA.

This order, as most readers of this report know, includes the wasps, bees, ichneumon flies and similar insects. As a very general rule, the insects belonging to it are beneficial, but there are some exceptions to the rule, as the Saw-flies (*Tenthredinidæ*) the Horn-tails (*Uroceridæ*) and a family of Gall-makers (*Cynipidæ*). The larvæ of the three families differ very widely in characters and habits, those of the first being provided with numerous (in most cases not less than eighteen) legs, and, with a few exceptions, feeding openly upon the leaves of plants; those of the second possessing six thoracic feet, of medium size, and true borers; those of the last family are minute, footless grubs and maggot-like, living enclosed in galls.

TENTHREDINIDÆ (Saw-flies.)

The species of this group are usually known, in the perfect state, as Saw-flies, on account of the peculiar boring apparatus with which the female is provided, and resemble somewhat closely our wasps, but may be distinguished from these by the fact that the division between the thorax and abdomen is less distinctly marked, the body is more robust and not so slender, the wings are larger in proportion to the body, and the cells more numerous, extending to the outer border; the antennæ are not elbowed and are rather short and simple, clavate or (in a few instances) branched or feathered.

The larvæ very strongly resemble caterpillars, being elongate, cylindrical worms provided with six true legs and a number of false or pro-legs. But they differ from true caterpillars, as they usually have from six to eight pairs of abdominal pro-legs, whereas, the caterpillars never have more than five pairs. Many of the species curl the posterior part of the body spirally when feeding or at rest. They are usually naked, the body being smooth and without hairs, though a few have prickles on their backs and some are covered with a white, flaky substance. Some of them have a dark slimy skin, on which account they are called "slug worms," or "slugs."

In addition to their strong resemblance to the true caterpillars in form, they also resemble them in habits, being mostly leaf-eaters. Some are solitary, others live together in swarms under silken webs; some are leaf-rollers, while others make portable cases of bits of leaves; a few are found in the stems of plants.

When fully grown most of them go into the ground, where they spin cocoons in which to pass the pupa state and transform into the perfect insect; others form strong parchment-like cocoons, which they attach to plants or in sheltered places, generally remaining over the winter before issuing in the perfect state; though some are double-brooded.

Westwood, in his introduction, arranges the larvæ of the family *Tenthredinidæ*, as follows, a few of which, the reader will see, do not belong to Section I:

A.—Larvæ with 22 legs—(6 pectoral, 14 abdominal and 2 caudal.)
a. Feeding on leaves of plants (not pine).
1. Solitary, resting in a spiral manner; ejecting a fluid from the pores of the body when disturbed; forming a cocoon.
2. Solitary or social; not ejecting a fluid from the pores of the body; forming or not forming a cocoon.
aa. Feeding on the leaflets of the pine; social; not ejecting fluids from the sides of the body; quiescent, attached by the legs to the leaflets; forming a cocoon.

B.—Larvæ with twenty legs (6 pectoral, 12 abdominal and 2 caudal).
a. Feeding upon leaves of plants (other than pine); resting at the edges or upon the surface of the leaves.
aa. Feeding upon the leaflets of the pine; social; resting at the edge of the leaflet; forming a simple cocoon.
aaa. Living in the galls of plants.

C.—Larvæ with 18 legs (6 pectoral, 10 abdominal and 2 caudal).

D.—Larvæ with only the six, pectoral, legs.

For the purpose of assisting the reader in determining species, I have prepared the following synoptical table, which applies only to the larvæ of the Saw-flies found injurious in Illinois:

Synoptical Table of the Saw-fly Larvæ.

I. Larvæ with 22 legs (6 thoracic, 14 abdominal and 2 caudal.)
A. Feeding on the leaves of Coniferæ (Pines, Firs, Spruces), social. Genus *Lophyrus.*
AA. Feeding on the leaves of trees and shrubs other than Coniferæ.
a. Exceeding one inch in length. On the Elm, occasionally on Willow. *Cimbex laporte.*
aa. Less than one inch in length, not found on the Elm.
b. Feeding on the leaves of trees:

1.	Hickory.	*Selandria caryæ.*
2.	Linden.	*Selandria tiliæ.*
3.	Willow.	*Dolerus avernsis.*

bb. Feeding on the leaves of shrubs:

1.	Cranberry.	*Pristiphora identidem.*
2.	Currant and Gooseberry.	*Pristiphora grossulariæ.*
3.	Raspberry.	*Selandria rubi.*
4.	Rose.	*Selandria rosæ.*
5.	Strawberry.	*Emphytus maculatus.*

II. Larvæ with 20 legs (6 thoracic, 12 abdominal and 2 caudal.)
A. Feeding on leaves; not gall-makers.
a. Feeding on the leaves of trees:

1.	Butternut.	*Selandria juglandis.*
2.	Cherry (Wild Black)	*Abia cerasi.*
3.	Cherry and Pear	*Selandria cerasi.*
4.	Willow (chiefly white	*Nematus ventralis.*
5.	Willow (Weeping)	*Nematus trilineatus.*
6.	Willow (*Salix humulis*)	*Euura orbitalis.*
7.	Willow (*Salix alba*)	*Euura salicicola.*

aa. Feeding on leaves of shrubs and vines:

1.	Currant and Gooseberry.	*Nematus ventricosus.*
	Currant and Gooseberry.	*Pristiphora rufipes?*
2.	Grape-vine.	*Selandria vitis.*
3.	Honeysuckle (Tartarian).	*Abia caprifolii.*

AA. Producing galls

On willows: *Nematus salicis-pomum*
Nematus salicis-pisum.
Euura salicis-ovum.
Euura salicis-gemma.

List of Plants

injured by the larvæ of Saw-flies.

NAMES OF PLANTS.	NAMES OF SAW-FLIES.
Butternut	*Selandria juglandis.*
Cherry	*Selandria cerasi.*
" (Wild Black)	*Abia cerasi.*
Cranberry	*Pristiphora identidem.*
Currant	*Pristiphora grossulariæ.*
"	*Pristiphora rufipes?*
"	*Nematus ventricosus.*
Elm (American)	*Cimbcx laportei.*
Fir	*Lophyrus abietis.*
Gooseberry	*Nematus ventricosus.*
"	*Pristiphora grossulariæ.*
"	*Pristiphora rufipes.*
Grape-vine	*Selandria vitis.*
Hickory	*Selandria caryæ.*
Honeysuckle (Tartarian)	*Abia caprifolii.*
Linden	*Selandria tiliæ.*
Pear	*Selandria cerasi.*
Pine	*Lophyrus abietis.*
" (White)	*Lophyrus abbottii.*
Raspberry	*Selandria rubi.*
Rose	*Selandria rosae.*
Spruce	*Lophyrus abietis.*
Strawberry	*Emphytus maculatus.*
Willow	*Dolerus arvernsis.*
"	*Nematus trilineatus.*
"	*Nematus ventralis.*
" (*Salix humulis*)	*Euura orbitalis.*
" (*Salix alba*)	*Euura salicicola.*
" (Galls on)	*Nematus salicis-pomum.*
" "	*Nematus salicis-pisum.*
" (Galls on Heart-leaved)	*Euura salicis-ovum.*
" (Galls on Humble)	*Euura salicis-gemma.*

1. Cimbex laportei, Leach.

Skin firm and rough with numerous transverse wrinkles. Color pale greenish yellow with a double black stripe along the back. When at rest, they coil up in a spiral form and lie on their sides, but when disturbed, emit a watery fluid from the pores on the sides

of the body. They have 22 legs (6 pectoral, 14 abdominal, 2 caudal); length of full grown larva, one and one-half to two inches.

Feed on the leaves of the American Elm, and occasionally on those of the willow.

Their cocoons are spun among the rubbish on the surface of the ground, and from them issue thick-bodied, black or blue-black wasps.

2. ABIA CAPRIFOLII, Norton.

Blueish green on the back and yellow on the sides, which are pale near the spiracles, and covered with small black dots. Between the segments is a small transverse yellow band with a black spot on the middle and one on each end. Head free, brownish black above, color of the body beneath, pale yellow. It lies curled up. and when disturbed emits a watery fluid from the pores on the sides of the body, and then falls to the ground. Number of feet, twenty.

It feeds on the leaves of the Tartarian Honey-suckle.

Spins a pale yellowish cocoon in August, in which it passes the Winter.

3. ABIA CERASI, Fitch. The Cherry Abia.

Larval characters unknown, but like other larvæ of the same genus it is probably twenty footed.

Dr. Fitch reared specimens from cocoons found on the wild black Cherry, upon which the larvæ probably subsist.

The fly is black, with transparent smoky wings. Length .60 of an inch.

4. SELANDRIA ROSÆ, Harris. The Rose-fly.

Body green above, paler on the sides, yellowish beneath and almost transparent. The skin on the back is wrinkled transversely and covered with minute elevated points. Two small triple pointed warts are on the edge of the first segment back of the head. Head small, round, yellowish or rufous, with a black spot on on each side of it. There are two broods each year, the transformation being passed in a cocoon beneath the surface of the ground. The perfect insect is a small, black wasp-like fly with smoky wings.

The slugs feed on the leaves of the rose bush, devouring only the parenchyma.

5. SELANDRIA CARYÆ, Norton.

Body wholly covered with flocculent white tufts which are rubbed off on being touched, The naked worm is green, darkest above and with indistinct blackish spots on the sides. The head is white with a small black dot on each side. They have twenty-two feet. Cocoons of earth are formed near the surface of the ground.

They feed on the leaves of the Hickory, being found in communities of fifteen or twenty on the under-side of the leaves. Length .75 of an inch.

The perfect insects are shining black; wings subviolaceous.

6. SELANDRIA RUBI, Harris. The Raspberry Saw-fly.

Head small, globular, pale green tinged with yellowish, and having the usual dark eye-spots. Mandibles tipped with brown. The body is dark green, with numerous green tubercles, from which proceed fleshy-looking, green branches which are spined. There are eight tubercles on most of the segments, arranged in transverse rows. Feet and pro-legs green, twenty-two in number. Length, one-half of an inch.

When full grown they burrow beneath the ground and form small oval cocoons of earth.

These larvæ feed on the leaves of the raspberry.

7. SELANDRIA TILÆ, The Linden Saw-fly.

The larvæ feed on the linden.

8. SELANDRIA VITIS, Norton.

Slender, thickest before and tapering behind. Head and tip of body black; body light green, paler before and behind, with two transverse rows of small black spots. Under side of body yellowish. After the last moult they are almost entirely yellow. Length, five-eighths of an inch. Feet, twenty, often apparently twenty-two.

They are social, feeding side by side in companies of a dozen or more, on the leaf of the grape-vine, and are two-brooded, transforming in small earthen cocoons beneath the surface of the ground. Sometimes they become very numerous and destructive.

9. SELANDRIA JUGLANDIS, Fitch.

Covered with a coating of flocculent, snow-white meal which rubs off at the slightest touch. Body cylindrical, tapering slightly from head to tail. Head shining, pale yellow, with a large black spot on each side. Feet dull pale yellow. Naked body blackish. Twenty footed; length, nearly one-half inch.

They feed on the leaves of the butternut.

10. SELANDRIA CERASI, Harr.

At first they are white but soon a viscid, olive colored matter oozes out of the skin and covers their backs. Head dark chestnut, small, and entirely concealed under the fore part of the body. Body largest before and tapering behind. After the last moult they have a clean yellow skin, and the marks between the segments and the head can be distinctly seen. Length of full grown larvæ about nine-twentieths of an inch. Number of feet, twenty.

These worms feed on the upper side of the leaves of the pear and cherry.

11. DOLERUS ARVERNSIS, Say.

The perfect insect is blackish violaceous; thorax rufous, a spot before and a triangular spot behind, black. Length, more than seven-twentieths of an inch.

Found feeding on the willow in April.

12. EMPHYTUS MACULATUS, Norton. The Strawberry Saw-fly.

Body thickest on the anterior segments, tapering behind. Head small, pale yellowish-brown with six black spots, two on each side and two in front. Color pale greenish with a faint whitish bloom. Skin semi-transparent. There is a broken band along each side inclining to a bluish green. Underside of body pale yellow, feet and pro-legs pale yellow, twenty-two in number. Length, six-tenths of an inch.

There are two broods each year, the larvæ appearing in May and August. They enter the ground and form small cocoons of earth in which to pass the pupa state.

Feed on the leaves of the strawberry.

13. NEMATUS VENTRICOSUS, Klug.

The young larva has the head, tail and feet black, with many black spots arranged around the body, from each of which arise two or more black hairs. After moulting the last time they are of a grass-green color, except the large, dark eye-spots on each side of the head, the joint next the head and the last two joints, which are yellow. Length, three-quarters of an inch. Number of legs, twenty.

They spin silken cocoons either in the ground or among the rubbish on the surface, and occasionally among the branches of a bush. There are two broods each year, the first appearing in the latter part of May or early in June and the second in August.

Feed on the leaves of the gooseberry or currant, to which they are very destructive.

14. NEMATUS TRILINEATUS, Norton.

Color light green, palest at the head and tail, with five rows of black dots along the back, the outer row on each side irregular and with intervals, On each side above the feet is another row of larger black spots. The three anterior pairs of feet are black. Number of legs twenty.

They feed on the leaves of the weeping willow which they devour extensively.

15. NEMATUS SALICIS-PISUM, Walsh.

Produces galls on a species of willow, and enters the ground to go into the pupa state.

16. NEMATUS SALICIS-POMUM, Walsh.

Color pale greenish white. Head pale brown with lateral blackish eye-spots. Length about one-fifth of an inch. Number of feet, twenty.

It forms galls on the heart-leaved willow, within which it passes the pupa state.

17. NEMATUS VENTRALIS, Say.

The larva is a black slug-like worm with twenty legs, the six anterior ones black, and the fourteen abdominal ones blue. The body is ornamented with a row of twelve cream colored spots along each side.

It is found feeding on different species of willow, but is partial to the white willow.

18. EUURA ORBITALIS, Norton.

Greenish white; head dusky. Length of full grown larva .13 to .19 of an inch. Number of feet, twenty.

Produces galls on the willow (*Salix humulis*).

19. EUURA SALICIS-OVUM, Walsh.

A pale yellow color, head very pale dusky, having the usual lateral eye-spots. Length about one-tenth of an inch. Number of feet, twenty.

20. EUURA SALICIS-GEMMA, Walsh.

Greenish white in color. Head tinged with dusky and having the usual dark eye-spots on the sides. Length about twenty-hundredths of an inch. Number of feet, twenty.

Burrows two or three inches under the ground where it spins a silken white cocoon, to which particles of earth are attached externally.

Forms galls on the buds of the humble willow (*Salix humulis*).

21. EUURA SALICICOLA, Smith.

Light pea-green in color. Head pale brown; labrum and ends of mandibles fuscous; the eye-spots, spiracles and claws of tarsi brown. Head and body hairy. Average length .24 of an inch. Number of feet, twenty.

This species is found only on new limbs of the willow (*Salix alba*). The female perfect insect inserts her eggs in longitudinal slits in the bark.

The larva works its way into the pith, upon which it subsists.

It spins an oval, yellowish silken cocoon within the twig in which to pass the winter.

22. PRISTIPHORA IDENTIDEM, Norton.

Light or pale yellowish green when first hatched, but grows darker with age. The full larva has two lighter whitish green lines running along the back from head to tail. After the first moult the head is pale honey yellow.

Length .30 of an inch. Feet, twenty-two in number. The perfect insect appears in the latter part of June.

The larvæ feed on the cranberry.

PRISTIPHORA GROSSULARIÆ, Walsh.

Color, pale grass-green without the black dottings found in the imported species before the last moult; head black, becoming green after the last moult, but with a lateral brown stripe on each side of the head, coming together at the top. Length, half an inch. Feet, twenty-two in number.

It is two brooded, appearing in the latter part of June and early in July, and again in August. The currant and gooseberry are its food plants, upon which it also spins its cocoon.

The female fly is shining black, with the head dull yellow and the legs honey yellow.

PRISTIPHORA RUFIPES? St. Fargo.

Of a pea-green color, head brownish-black or blackish. The segments are slightly wrinkled, and there is on each side of the body a row of tubercles of the same color as the body. When full grown the head is of a lighter color. Number of feet, twenty. Length of mature larva about three-eighths of an inch.

They are social, living in clusters on the leaves of the gooseberry and currant and devouring all except the coarser veins. When moving from leaf to leaf they spin a light web, and when disturbed drop to the ground, spinning a web as they descend.

The cocoon is brown, about the size and shape of a grain of wheat, and is found under the surface of the ground.

The perfect insect is a black, four-winged fly with light-brown legs.

24. LOPHYRUS ABBOTTII, Leach. Abbott's Saw-fly.

The larvæ of this saw-fly, like all the others of this genus, are social, that is, they live and feed together in groups of from fifteen to fifty.

Body, dirty white, with four ragged, oblong, black spots on each segment, forming two rows along the back and a row on each side. The spots on the back become somewhat diffuse on the three latter segments, forming on the last a single black patch. Thoracic feet black; abdominal legs dirty white. When disturbed the larvæ fling back the head and tail. Length, .80 of an inch. Number of feet, twenty-two.

They are very destructive to the white pine, almost stripping it of leaves.

The perfect female is .30 of an inch long, rust colored, under side and legs clay colored, antennæ black, wings hyaline, tinged with yellowish.

25. LOPHYRUS ABIETIS, Harris. Fir-tree Saw-fly.

Cylindrical and tapering, of a dirty green color, with two darker green stripes along the back, and two on each side; head and six forward legs black. Length of full grown larva, half an inch. Number of feet, twenty-two.

They form cocoons in crevices and under fallen leaves. Two broods appear each year, the perfect insects coming out in May, and again in August.

The larvæ feed on the leaves of the fir, spruce and pine, almost stripping the ends of particular limbs.

Perfect female, .30 of an inch in length, of a yellowish color with a blackish stripe on each side of the middle of the thorax. Male smaller and darker.

UROCERIDAE.

This family contains the somewhat limited group of wasp-like insects known as "Horntails," so called from the long, prominent horn in the end of the abdomen in the perfect insects. They are of rather large size, resembling closely a wasp.

The larvæ are long, cylindrical grubs, with the segments distinctly marked; the head is small and horny; the last abdominal segment is large and armed at the end with a horny point. They have but six legs, the true or thoracic legs, which are very small; the abdominal pro-legs are replaced by fleshy protuberances. They reside in the interior of trees, which they perforate in various directions, often doing much injury. When about to enter the pupa state they make their cocoons of silk, interwoven with their borings.

UROCERUS ALBICORNIS, Fabr.

The larva is thick, cylindrical and divided into thirteen segments including the head. The last segment is rounded, larger than the others, and ends in a conical horn-like point. The head is small, shining and horny.

It forms a winding burrow in the wood of the pine.

The perfect female is black, one inch long, with transparent smoky wings; a white spot behind each eye and another on each side of the abdomen which ends in a lance-shaped point, below which is the ovipositor.

The male has a spot behind each eye, and a rust-colored abdomen.

UROCERUS ABDOMINALIS, Harris.

This species is very similar to the above, and burrows in the white pine.

Dr. Fitch entertained suspicions of its being the male of *U. albicornis*.

TREMEX COLUMBA, Linn.

Yellowish white, cylindrical, with the last segment rounded and terminated by a conical horn-like projection. Length, about one and one-half inches.

It burrows in the wood of the elm, oak, sycamore, apple and pear.

The body of the perfect female is cylindrical, about as thick as a common lead pencil, and an inch and a half or more in length, exclusive of the borer; head and thorax rust-colored, varied with black; abdomen black, with seven ocher-yellow bands across the back.

XIPHIDRA ALBICORNIS, Harris.

The larva probably bores in the trunks of soft-wooded trees.

XIPHIDRA MELLIPES, Harris.

This is probably a variety of the above *X. albicornis*.

ORYSSUS HÆMORRHOIDALIS, Harris.

ORYSSUS MANURUS, Harris.

ORYSSUS AFFINIS, Harris.

The larvæ of these three species have not been studied, but they probably live in willow trees, boring in the trunks.

LEPIDOPTERA.

This order, as has already been frequently stated, includes the butterflies and moths, and these only. The larvæ are true caterpillars, elongate and more or less cylindrical in form, with a distinct, comparatively large and horny head. With the exception of one or two footless species (one only is known in this country), they are provided with six true legs and from four to ten pro-legs. The first three pairs are covered with a horny skin, are pointed and tapering, and furnished at the tip with a single claw. The pro-legs are short, thick and blunt, and without any distinct or true joints. The bodies are composed of twelve rings, or segments, exclusive of the head, which, in descriptions, are numbered from the first behind the head—which is *one* or *first*—backward, the last or twelfth being the anal or caudal segment. Some are thickly covered with hairs, others but slightly, whilst others are entirely naked; some are smooth, while others are covered with tubercles, or have the body studded with spines or spiny hairs. The colors are various, though green and somber prevail. Most of the species have a little conical opening or tube in the lower lip, from which they spin the fine silken threads by which they suspend themselves, form cocoons or webs, etc.

They are found in almost every possible situation, though the larger portion of them are leaf eaters; some reside in wood, stems and canes; others in fruits and various substances. None, I believe, are truly aquatic, and few, if any, truly parasitic on other insects.

LARVÆ OF BUTTERFLIES.

By Miss Nettie Middleton.

PAPILIONIDÆ.

This family is represented in Illinois only by the genus *Papilio*, which contains the Swallow-tailed Butterflies. The Caterpillars are cylindrical, provided with sixteen legs, and smooth or more or less roughened with small tubercles, but never villose nor hairy. The first segment behind the head is furnished with two retractile tentacles or scent organs, joined so as to form a fork, which are usually drawn in, but which the insect throws out when alarmed, emitting at the same time a disagreeable odor. They are usually solitary* in their habits, feeding on the leaves of plants, and are of medium or above medium size.

PAPILIO PHILENOR, Dru. The Philenor Butterfly.

FIG. 6. Papilio philenor. Larva.

Caterpillars, when fully grown, are about two inches long, velvety-black, with purplish or brownish tint, covered with long tubercles of same color and shorter orange tubercles, as follows: Two long antennæ-like dark ones on the first segment; segments 2, 3, 5, 6, 7, 8 and 9 each with two dark lateral and two orange dorsal tubercles, the dark or brown ones longest;

*NOTE.—This is intended to apply only to Illinois species, as the larvæ of some Papilios, at least of South America, are gregarious.

fourth segment with four orange tubercles; tenth and eleventh with the four tubercles dark brown; twelfth with only two dorsal dark ones, the lateral wanting. These Caterpillars feed only on species of *Aristolochia*, as the Dutchman's Pipe, Virginia Snake-root, and the Woolly Aristolochia. They are found on the leaves in July and August.

PAPILIO ASTERIAS, Fab. The Asterias Butterfly.

When fully grown, the larvæ are about one inch and three-quarters in length; bright pea-green or greenish-yellow in color, with a transverse black stripe on each segment; in each black stripe are six bright yellow dots, three on each side of the body. Body paler beneath; feet dark. The soft retractile horns of the first segment are orange-colored. When very young they are black, with a broad white band across the middle. They are found in June and July, feeding on the leaves and flowers of parsley, carrots, parsnips, celery, anise, dill, carraway, sweet fennel, and some native umbellate plants.

PAPILIO AJAX, Linn. The Ajax Butterfly.

The larvæ of this species, when very young, are black, covered with minute papillæ bearing fine hairs. After the first molt they are ash-colored; when full grown the color is darker, quite black on the four anterior segments, and dorsally throughout, each segment crossed by five pale lines. The ground color varies in the different varieties, being sometimes gray and sometimes bluish-green, with one transverse line on each segment bright yellow. Length, when full grown, about one and a half inches. Feeds on the leaves of the Pawpaw.

PAPILIO TROILUS, Linn. The Troilus Butterfly.

When first hatched, slate-colored above, with an eye-like black spot on each side of the third segment, behind which is an elongate white spot, and top of eleventh segment white. After first molt the general color is olive-brown, the white spots wanting, and on the back are two rows of blue dots. When full grown the back is pea-green, sides yellowish, and the head and under side pink; a cross black line on the first segment; two orange-colored spots on the third and fourth—those on the third with black centers. Length about two inches. Found in June and July, feeding on the leaves of Sassafras and Prickly-ash, partially folding them with a slight web; will also occasionally eat the leaves of the Lilac and Spice-bush.

PAPILIO TURNUS, Linn. The Turnus Butterfly.

The larva, when first hatched, is black, the body roughened with small brownish-black tubercles; the second segment is elevated and flesh-colored; a small white spot on the seventh and eighth segments. When full grown the body is olive-green, appearing as if dusted with white powder, with white hairs issuing from those

minute white dots. On the first segment is a yellow fold, and on each side of the fourth segment an eye-like yellow spot surrounded by a black ring; on the hinder part of the fifth segment a transverse yellow fold; faint bluish dots on each side of the fifth and hinder segments; the head, underside and legs pink. Length, two inches or over.

Found in June and July, feeding on the leaves of Apple-thorn, wild and cultivated Cherry-trees, folding them in the same manner as the larva of the Troilus Butterfly.

One found last year in May went into pupa state May 23.

PAPILIO CHRESPHONTES, Cram. The Chresphontes or Thoas Butterfly.

When first hatched the larva is not more than one-tenth of an inch in length, and apparently entirefy black, or brownish-black; in a day or two a few yellowish-white spots appear on the back; as the worm grows these spots seem to spread or come together until they finally, when the caterpillar is full grown, form two large white patches; the anterior one is lozenge-shaped and extends across the back and a part of the sides, one angle reaching to the first pair of abdominal feet. The other white patch covers the posterior part of the back, and is marked on its anterior side with brown spots; the space between these two patches is dark brown. A whitish longitudinal stripe extends from the head on each side across the first four segments; between these two stripes there is a large brown patch marked by large brownish-black spots; behind this brown patch occur the large white ones before described; the underside of the body and the feet are brown. The first segments behind the head are enlarged. Length, when full grown, a little more than two inches.

Found June 1 on a shrub of Prickly-ash, and changed to the chrysalis form June 17; another, taken October 10, changed the 17th.

PIERIDÆ.

This family includes the Cabbage, the Sulphur and the Terias Butterflies so common throughout our State. The Caterpillars are finely pubescent, slightly attenuated toward each extremity, and are provided with sixteen legs. They feed upon the leaves of plants, chiefly *Cruciferæ* (cabbage, turnips, etc.,) and *Leguminosæ* (clover, cassia, etc.) They are never clothed with long hairs or spines, and are without the tentacles or scent organs.

Some of the species are very injurious to cultviated vegetables.

PIERIS PROTODICE, Bd. The Southern Cabbage Butterfly.

FIG. 7. Southern Cabbage Butterfly.

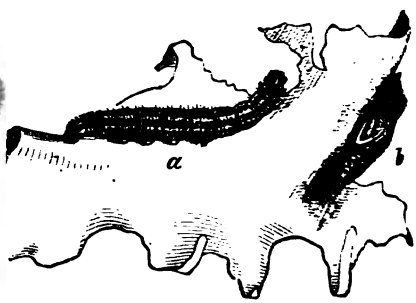

FIG. 8. Larva and Pupa.

The larva of this species, when full-grown, averages 1.15 inches, the middle segments being the largest. Predominant color variable from green or bluish green to clear, pale blue, and at other times deep indigo or purplish blue; six transverse wrinkles on each segment, the first and fourth being the widest; on these two wrinkles are four longitudinal yellow lines, equally distant from each other, and each interrupted by a pale blue spot; there are traces of two additional longitudinal lines immediately below the stomata, one on each side; on each transverse wrinkle is a row of shining, black, round, slightly-raised piliferous spots, from which proceed stiff, black hairs, the spots on the the first and fourth wrinkles being the largest, and more regularly situated than the others; venter somewhat speckled with black, and rather lighter than the color above; head the same color as the body, covered with black piliferous spots, sometimes with a yellow or orange patch on each side; a pale blue ring sometimes found around the base of the black spots; feeds on cabbage and other allied plants; appears in July, August and September.

PIERIS OBEDACEA, Bd. The Turnip Butterfly.

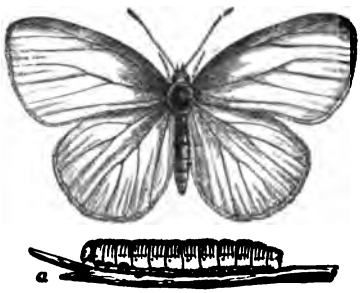

FIG. 9. Turnip Butterfly and larva.

The larvæ of this species are produced from small, yellowish, pear-shaped eggs, which are longitudinally ribbed. The worms appear in a week or ten days after the eggs are laid, and attain their full size in about three weeks; they are then about an inch and a half in length, of a pale green color, not easily distinguished from the cabbage leaves on which they feed. They are found on the under side of the leaves, through which they eat numerous irregular holes.

When they are about to transform, they leave the plants on which they have been feeding, and seek some sheltered spot under the edges of stones or palings where they change into the chrysalis state.

They feed both on Cabbage and Turnip leaves. Found only in the northern part of the State.

PIERIS RAPÆ, Linn. The European Cabbage Butterfly.

FIG. 10. European Cabbage Butterfly—Male.

FIG. 11. Female.

As this too well known, introduced species, which does so much injury to our cabbages, has been fully described in my Fourth Report (9th Report of State Entomologist), and the various remedies tried and proposed, there given, only the description of the Caterpillar will be given here.

FIG. 12. Larva.

This, when first hatched, is of a pale, glossy, yellow color, and not more than one-tenth of an inch long. As it increases in size, it acquires a green color. It molts, or changes its skin, three times before it reaches its full growth. It is then of a uniform, rather pale green color, and from an inch to an inch and a quarter in length; the constrictions between the segments are not very distinct, the body appearing rather to be divided into numerous little rings, about six to a segment. It is everywhere covered with fine, short, whitish hairs; interspersed among these are minute, black, conical tubercles, or elevated points. By examining with a magnifier, it will be seen that these points are arranged in rows

on the transverse ridges, the intervening transverse impressed lines being smooth, and without hairs or tubercles. Although the general color is pale green, a close examination shows that it has a slightly bluish cast, more apparent on the under side, which is paler than the dorsal surface. There is usually a narrow yellow line along the middle of the back, but this is sometimes partially or entirely obliterated; on each side, near the lower margin, there is a row of bright yellow dots, one on each segment, a little behind the breathing pore. When young, the skin is somewhat glossy and shining, but when they reach maturity, the surface assumes a velvety appearance, given by the minute pimples and short hairs with which it is covered. The head is rather small, and is also hairy; the body tapers very slightly toward each extremity; feeds on the different varieties of cabbage or turnips, and horse-radish. There are two broods in the northern and central parts of the State, and probably three in the southern. For a full account, and remedies, see *Ninth Report of Entomologist.*

CALLYDRIAS EUBULE, Linn.

The larva of this species is not positively known, but that of a very closely allied species, if it is not synonymous, may be briefly described as follows: Of a deep citron-yellow color with black punctures; a blue band on each segment, some blue lines running above the feet; underside of the body and the feet yellow. Feeds on cassia and clover.

COLIAS CAESONIA, Stoll.

Larva green, smooth, slightly pubescent, a little attenuated at the extremities, a white stripe on each side punctured with yellow, and on each segment a black band bordered with yellow.

Feeds on the different species of clover.

COLIAS EURYTHEME, Bd. The Eurytheme Butterfly.

The larva of this species and of the next feed on the different species of clover, lupine and sometimes on pea-vines.

The upper surface of the worm is of a dark velvety green color, and finely folded transversely; the under surface is green. On each side of the dorsum is a narrow white line, on which are situated irregular patches of bright vermillion, some of the patches being occasionally shaded with orange-yellow.

Length 1.40 inches.

COLIAS PHILODICE, Godt. The Philodice Butterfly.

The general color of this larva is green, a little paler or more yellowish at the sides, slightly downy; when full-grown, about an inch and a half in length.

'ERIAS NICIPPE, Fab. The Nicippe Butterfly.

The larva is of a pale green color, with a more obscure dorsal ne, a white band extending down each side marked with five yel- ›w points.
Feeds on clover, cassia and senna.

'ERIAS LISA, Bd. The Lisa Butterfly.

Larva green, with four longitudinal whitish lines.
Feeds on Leguminous plants.

DANAIDÆ.

This family is represented in Illinois by but one species—*Danais archippus.*

DANAIS ARCHIPPUS, Fabr. The Archippus Butterfly.

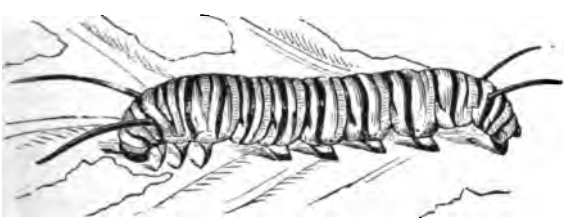

FIG. 13.—Danais archippus.

The first act of the young larva of this species, like that of *Pieris rapæ*, is to devour the shell of the egg from which it has hatched. At first it is only about 0.12 inches long, cylindrical throughout and of a pale, greenish-white color; there are black conical points situated near the top of the second and eleventh segments, which afterward develop into fleshy horns; on the dorsal part of each segment are six black warts from which proceed minute black bristles; on the anterior part of the segment they are placed four in a row and on the posterior part, one on each side; on each side there are three similar warts; head shining black. In a few days a dark band appears across each segment. It undergoes three molts before changing to a chrysalis; after each molt the color becomes brighter, the yellow and white being very obscure after the first molt, and the horns become visible longer. When full grown it presents a very

pretty appearance, the ground color being whitish and banded with black and yellow; on each segment the white covers the greater part, with the black band through its center and the yellow occupying the space between; the long fleshy horns at the extremities are black, the anterior pair being longer than the posterior; the head is yellowish with a triangular black stripe in front below, a similar one above; underside of the body black, greenish between most of the segments. Length, 1¾ inches.

Feeds on Milkweed (*Asclepias*) and Dog's-bane (*Apocynum androsæmefolium*).

NYMPHALIDÆ.

This family includes the larger number of our Butterflies. The caterpillars are cylindrical, have sixteen feet, and are more or less spinose, or, as is the case in some species, only on the head. As a very general rule, and without exception among those herein described, they are leaf-eaters, and usually of medium size.

Agraulis vanillæ, Linn.

The larva of this species is of a pale brownish-yellow color; two blackish dorsal lines sometimes obsolete, two more of the same color on the sides; more or less covered with blackish spines, two of which are on the top of the head. Head with a whitish line on each side; feet, black.

Feeds on blue and scarlet Passion flowers (*Passaflora cærulæ* and *P. incarnata*).

Euptoieta claudia, Cram.

A reddish-yellow color, more or less covered with blackish spines, with two white lines on each side of the body, and a row of white spots down the back; underside of a whitish color; head and feet black; the two spines on the first segment are much larger than the others and turn toward the head, having the appearance of antennæ.

Found on Violets, Podophyllum, Sedum and Passiflora.

ARGYNNIS IDALIA, Dru.

The larva when first hatched is .08 of an inch in length, slightly enlarged toward the middle; color, pale semi-transparent brown, with rows of tubercular dark spots; after the first molt it has a mottled appearance, and is striped with brown, with longitudinal rows of black hairy spines; there are five molts, the colors changing each time. The length at maturity is 1.75 inches; tapering toward each extremity; of a velvety-black color, with ochreous-yellow bands and stripes; a broad dorsal stripe is traversed by a spotted black line, sometimes obsolete; a darker line below the stomata; three narrow bands extend from the lower line on one side to that on the other, running between the segments; a yellow dash on each segment, extending from the dorsal stripe to the stomata; stomata black, oval, surrounded by white; six rows of fleshy spines, two dorsal rows silvery white, lower rows orange, at least at the base. The spines emit a number of straight fine black bristles; the last segment is wholly yellow; under side, olive-brown; legs black, pro-legs smoky-brown. Head bilobed, upper half reddish, lower part black.

Feeds on wild Violet.

ARGYNNIS DIANA, Cram.

The young larvæ of *diana*, *cybele* and *aphrodite* are so similar as to be almost indistinguishable from each other; they are about one-twentieth of an inch in length, cylindrical in form, and of a greenish-brown color, with rows of darker tubercular spots, from each of which proceeds a black hair; head, brown. When touched, the larva curls up. The spines on the full-grown caterpillars of this species are much larger than those of the other two, radiating from the central axis of the body like the spokes of a wheel.

Feeds on wild Violets.

ARGYNNIS CYBELE, Fabr.

The full-grown larva is black, with a reddish tinge; a transverse row of branching spines on each segment, being yellowish at the base and brownish at the tips; on each of the anterior segments below the spines are a number of black tubercles, from each of which proceeds a tuft of short, black hairs. Stomata black, oval, with lighter margins; feet black; pro-legs reddish-brown, with a black spot on the outside, near the base; head black, slightly bilobed, with a tubercle on each tip, emitting a moderately long, black hair; many fine black hairs on the face. Length, two inches; slightly tapering toward each extremity.

Chrysalis suspended from a white silk button.

Food plant, wild Violet. Two-brooded.

ARGYNNIS APHRODITE, Fabr.

When young, as previously stated, this larva closely resembles that of *cybele* and *diana*; its length, when full-grown, is about 1½ inches.

Like the others, it is two-brooded, and feeds on wild Violets.

ARGYNNIS ALCESTIS, Edw.

The young larva is about .08 inch long, tapering slightly from the head posteriorly; of a brownish, transparent-green color, and marked with dark tubercular spots, each emitting a black clubbed hair; it molts five times, and after attaining its full size measures about 1.4 inches, having changed to a velvety-black color. It is marked by six longitudinal rows of long slender spines, thickly surrounded at and near the tip with short black bristles; the dorsal row of spines are brownish at the base, the others yellowish. Head black, flat, deeply bilobed, covered with short black hairs; on each cheek a large slightly raised tubercle; feet and legs black.

Feeds on wild Violets.

ARGYNNIS ATLANTIS, Edw.

"Larva uniformly tapering toward each extremity. On each side of the vertex of the head is a small short spine, giving the head an oblong shape when seen from the side; the front is broad, somewhat square, flattened, with scattered hairs. On the first and second thoracic segments are two large subdorsal spines and minute lateral warts bearing small bristles, and on the hind edge of these segments are two large spines. On the third thoracic segment are three large spines. On each abdominal segment are six stout spines of the same size, and placed equidistant on the upper surface. The bristles on the spines are nearly one-half as long as the spines themselves. Small papillæ, giving rise to bristles, are scattered over the body, with a row of them above the abdominal feet. The triangular anal plate is small, papilliform and prominent. The larva is dark-velvety purple, the base of the head being of a pale horn-color; the body beneath is scarcely paler than above; the spines are pale livid on the basal half."

Found July 17 ready to pupate; feeds on Violets. (Edwards.)

ARGYNNIS MYRINA, Cram.

Young larva about 1-10 of an inch long; of a dark brown color, with paler transverse bands, and thickly covered with pale brownish hairs; head shining black. After the second molt the body is greenish black, a few small yellowish dots along each side; a tranverse row of strongly elevated black tubercles on each segment, each emitting numerous short black spines; after each molt the colors become more distinct, the dots along the sides assuming an orange tint. When full grown, which is during the first weeks of August, the predominating color is grayish-brown, sprinkled with deep velvety-black; on the second segment are two long fleshy, bristly spines, white at the base and black at the tips; the bristles are black; the third, fourth and terminal segments each with four whitish black-tipped spines, the other segments with six spines; a pale line immediately below the stomata from fifth to terminal segments; underside brownish-black, feet black and shining; prolegs brown, with a shining band of brownish-black on the outside.

This also feeds on the wild Violet.

ARGYNNIS BELLONA, Fab.

This species is almost if not quite indistingishable from *A. myrina* in the preparatory stages; the egg is slightly longer with the sides less rounded; the spines on the second segment of the larva are not lengthened, as in *myrina*. Like that species and the others of *Argynnis*, it feeds on Violets.

MELITAEA PHAETON, Dru.

The young larva of this species is less than one-half of an inch long, and is found early in the Spring, under dead leaves. When full grown, it is cylindrical in form, with the head slightly angulated; body of a deep orange color, excepting the head, thorax and last three segments, which are black; covered with black raised tubercles, from which proceed rather long fleshy hairs. These tubercles are arranged in nine longitudinal rows, with black lines running between the rows, black dots along each side of the body.

Feeds on *Chelone glabra*, *Lonicera sciliata*, and Plantain; covering the summit of the plant on which it feeds with a web, under which the caterpillars live in swarms. The butterflies appear in June and July.

MELITAEA THAROS, Dru.

This larva is found on the under side of the leaves of the Aster and Sunflower (*Actinomeris helianthoides*) in May and June, and again in July and August. When young it is about .06 of an inch in length, largest anteriorly; of a clouded yellowish green color; sparsely covered with black hairs; after the first molt, merely hairy; after the second molt the spines are distinctly seen. The first brood molts five times; the second, four. The larva, when full-grown, is .85 of an inch long; of a brownish black color dotted with yellow, more thickly on the back; usually a black dorsal stripe, though this is sometimes wanting. Body longitudinally striped with yellow and black; seven longitudinal rows of short fleshy spines, thickly surrounded by brown bristles with black tips; head, shining bronze with black hairs, marked in front with whitish and yellowish.

MELITAEA NYCTEIS, Doub.

Young larva about .05 of an inch in length. Body pale yellowish, with darker raised dots, from each of which proceeds a single pale brown hair; a yellow spot on the top of the last segment; head dark greenish brown, when full grown the upper side is brownish black, with greenish spots; a transverse row of tubercles on the second segment, from which proceed blackish hairs; four black branching spines on each of the third, fourth and last segments; each of the other segments has six spines, the two upper pairs black at the base and greenish at the tip; a pale greenish white circle around the lower pair of spines; the spines on the terminal segment are arranged in two pairs, one above the other; underside pale greenish; feet tipped with black; pro-legs pale, semi-transparent.

This, like the *phaeton*, forms a web, being gregarious in habit: feeding on the underside of the leaves of Sunflower (*Actinomeris helianthoides*), *A. squarrosa*, and on the Aster.

GRAPTA INTERROGATIONIS, Fabr. The Semicolon Butterfly.

The length of the full-grown larva is about 1¼ inches; the color deep brown. It is cylindrical, and striated with yellowish and whitish: all the segments except the second more or less covered with black branching spines, yellowish at base; on the second segment a row of yellowish tubercles, instead of spines. Head dark red, slightly bilobed; on the tip of each lobe there is a tubercle, from which proceeds short black spines. Found in July and August. Feeds on American Elm, Lime tree, Hop vine and Nettle.

GRAPTA COMMA, Harr.

The young larva is about one-tenth of an inch long; black, and covered with short hairs, the colors changing with each molt. The full-grown larva is of a yellowish color, and covered with branching spines of the same color, tipped with black; on the back is a row of three-pronged green spots; along each side a longitudinal pale green line. The head is grayish in front, black on each side, and is covered with small prickles; on the top of the head are two black branching spines. Length, 1¼ inches.

Found on the Hop, Nettle, False Nettle (*Boehmeria*) and Elm; it feeds singly, and conceals itself on the under side of a leaf, drawing the outer edges together by a silken cord, thus protecting itself from the light and heat through the day, and emerging at night to feed: as it consumes the leaf by which it is sheltered, it is obliged to frequently move its quarters. The chrysalis is suspended from the under side of a leaf.

GRAPTA FAUNUS, Edu.

The full grown caterpillar measures 1¼ inches in length; the upper side of the segments from the seventh to the sixth are brick red, striped transversely with blue, yellow and black lines; a few white hairs on the second segment; four branching yellow spines with black tips, on third and fourth segments; six on fifth and sixth; seventh to twelfth segments white, with a faintly marked black dorsal stripe; each segment with three transverse yellow bands and two oblique black spots; seven branching spines on each segment, viz: three on upper surface white, one on side brown, and one close to under surface white; last two segments black, twelfth with seven spines, five white and two brown; thirteenth segment with four white spines; sides of body red with two black lines, the lower line spotted with blue. Under surface gray, striped transversely with black; feet and pro-legs black.

Feeds on Gooseberry and Willow, the Willow being its favorite food.

From the chrysalid to the perfect state it requires about thirteen days; chrysalis grayish brown suspended from a button of pink silk.

GRAPTA MILBERTI, Godt.

Has a grayish appearance at first sight, though the body is really black, the gray appearance being caused by fine white dots and hairs with which it is thickly covered; each segment, excepting the second, has a transverse row of black branching spines; on the third and fourth segments four; fifth segment six; the remainder to terminal, seven; terminal, two pairs, one pair behind the other; an interrupted line of gamboge yellow along the side, and below this near the feet one of a greenish yellow color. Head black, finely sprinkled with minute white dots and covered with whitish hairs; underside greenish and covered with white dots; a broad black stripe extends over the anterior segments. Feet polished black, pro-legs green. Feeds on the common Nettles (*Urticæ*).

GRAPTA PROGNE, Fabr.

Color gray, about 1¼ inches in length; wrinkled transversely between the segments, the base of the wrinkles being black and the summit whitish; a whitish band on the anterior part of each segment; this band is crossed on each side by an oblique black spot, a tawny yellow spot on each segment immediately above the stigmatal line and a smaller one of the same color below, from each of which issue spines; a row of white branching spines tipped with black on each side of the body. Head whitish, sprinkled with black dots and more or less thickly covered with uneven short white hairs; legs and pro-legs black on the outer sides, dull pale reddish on the inner; under side whitish mottled with brownish.

Feeds upon American Elm, Cultivated and Wild Currant and Wild Gooseberry (*Ribes rotundifoliæ*).

GRAPTA J-ALBUM, Bd.

This larva is but little known excepting that it feeds on the Willow; the butterflies appearing late in the fall and early in the sprng.

VANESSA ANTIOPA, Linn.

The full grown larva measures from 1¾ to 2 inches in length. Black, thickly sprinkled with minute white dots, from each of which proceeds a fine whitish hair; a row of eight dark brick-red spots on the back, with two faint blackish dots on each segment, and a transverse row of black branching spines, four each, on second and third segments, six on fourth and fifth, seven each from sixth to twelfth, two pairs on the terminal, one pair behind the other. Under side the same color as the upper, with fewer dots and hairs; feet black, pro-legs dull red with two small dots and a few whitish hairs on the outside of each; anal legs black tipped with red; head strongly bilobed, black, and rough with projecting tubercles.

This species is two-brooded, and the caterpillars may be found in great numbers feeding together early in June, on Poplar, Willow and Elm, though the Willow seems to be preferred.

PYRAMEIS ATALANTA, Linn. The Atalanta Butterfly.

The young caterpillar is almost black, and is protected from the poison prickles on the leaves of the Nettle, on which it feeds, by numerous branching spines; these, being longer than the prickles, prevent its body from coming in contact with them; the head is also protected by a tough shell. As soon as hatched it spins a little web with which to cover itself, drawing the edges of the leaf toward each other but not together; when it has nearly consumed the leaf on which it resides it seeks another and larger leaf, this time drawing the edges together, making its habitation more secure, though having to change its residence a number of times before it is ready to undergo its transformations; when full grown it measures about 1½ inches; the color is rather variable, from greenish, yellowish-green and violet to brownish or dusky, more or less covered with whitish or grayish dots; on each side a sinuous longitudinal row of citron-yellow spots; spines on the back, whitish; head black, rough, covered with elevated white points. They are gregarious in habit and feed on both the leaves and seeds of *Urtica urens* and *U. dioica*, seeming to prefer the seeds; feed also on Hop and *Boehmeria cylindrica*. Chrysalis blackish, covered with a grayish efflorescence, with gold-colored tubercles on the back.

PYRAMEIS HUNTERA, Fabr. Hunter's Butterfly.

The young larva is about 0.25 inch in length, of a dull reddish-brown color, a row of black, shining, branching spines on each segment excepting the second. Head, polished black. The full grown caterpillars measure 1.20 inches in length, of a blackish-gray color banded with yellowish-green; the black spines visible on the young larva arise from the grayish color which occupies the middle portion of each segment, the second segment as in the young, without spines: they form a transverse row four each, on third, fourth and last segments, and seven on each of the others; a few faint longitudinal black lines are visible across the yellow striæ, but interrupted by the dark color; a yellow line immediately above the stigmatal line and another below it, the upper one marked with a small orange spot immediately above each stomata; a round silvery white spot on each side of the dorsal line from the sixth to the twelfth segments inclusive. Head black, flat in front, bilobed covered with a number of fine brownish hairs, underside dull purplish-brown, finely sprinkled with minute yellowish dots; feet black, pro-legs purplish brown.

These larvæ live singly on the tip of the leaf, sewing the edges together with a fine silken thread. Feeds on *Carduus*, *Cnicus*, *Circium*, Nettle (*Urtica*), Burdock (*Lappa major*), *Onopordon acanthium*, *Althæa rosea*, *Helianthus*, *Malvaceæ*, *Silybum marianum*, *Senecio cineraria* and *Gnaphalium*.

Chrysalis yellowish, with a number of large golden spots irregularly scattered. Two-brooded.

PYRAMEIS CARDUI, Linn. The Thistle Butterfly.

The young larva differs from the full-grown only in size and being of a darker color, which causes the markings to be more obscure and sometimes not visible. The full-grown measures from 1¼ to 1⅜ inches; varying in color from grayish to brownish and reddish; a dorsal stripe, white anteriorly, yellow posteriorly; on each side a pale yellow interrupted stripe, more or less covered with yellowish or brownish-white branching spines tipped with black, none on the second segment, four each on the third and fourth, also on the terminal where they are placed in pairs, one pair behind the other; on all the other segments there are seven; body thickly sprinkled with minute white and yellow dots from which proceed fine whitish hairs. Head reddish or black, thickly covered with fine whitish hairs and a few small black tubercles.

Found hidden on the upper side of the leaves of Thistle (Spear thistle), *Carduus*, *Cnicus*, *Circium*, Nettle (*Urtica*), *Lappa major*, *Onopordon acanthium*, *Althaea rosea*, *Helianthus*, *Malvaceæ*, *Silybum marianum* and *Sencio cineraria*.

JUNONIA LAVINIA, Cram.

Full-grown larva about 1¼ inches long, with a black dorsal stripe, on each side of it an interrupted yellow line, ragged on the edges; then a broader black line; the stigmatal line mottled yellowish and black; below the stigmatal a yellow line; on each of the second and third, and last two segments are four projecting tubercles, the middle two black, the outside two orange, from each of these proceeds a metallic-blue spine; on each of the remaining segments there are seven tubercles, one on the median line, the rest down the sides, the middle three black, the outside ones orange with a metallic-blue spine like the others; anterior part of second segment tan color; just above each foot are two little cream-colored spines. Head black, thickly sprinkled with white, and an orange triangle in the middle of the face; pro-legs tipped with black; underside of body, dirty brown.

Taken September 20, on *Gerardia tenuifolia* changed to chrysalides suspended from the top of the cage September 30, the butterflies appearing October 10, 11 and 12; it also feeds on *G. purpurea*, *Antirrhinum canadensis* and *Plantago lanceolata*.

LIMENETIS URSULA, Fabr.

Larva of a pale, brownish color with a greenish tinge, more or less variegated with white on the sides; the second segment is armed with two long barbed brown horns, the fifth bears two roundish tubercles of the same color. Chrysalis of a russety color, with a prominent projection on the back. Feeds on Willow, Oak (Scrub-oak), fruit trees and gooseberry bushes. Two-brooded.

LIMENETIS DISIPPUS, Godt.

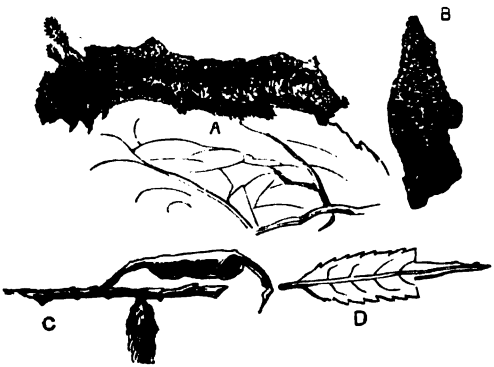

FIG. 14. Limenetis disippus. Pupa, larva and work.

Color, a dark rich green, variegated with white; second segment with many minute whitish tubercles, a little arcuate in front; third and fourth segments dull whitish-green, somewhat prominent, with spiny horns on each side; two black dots between the third and fourth segments, each of the remaining segments with a tubercle on each side, from which proceed whitish spines, these are in line with those on the second and third segments; a large white patch situated on the posterior part of the body. A white stripe below the stomata extending from the fifth segment, in which are whitish spines, to the tenth; elongate blackish spots on each side of the seventh, eighth and tenth segments. Head large, bilobed in front, pale green, covered with small greenish tubercles, one at the tip of each lobe more prominent than the others; two whitish lines running down the front; under side greenish, with a posterior, longitudinal, dull white stripe; thoracic legs brown, with blackish rings; pro-legs green, tipped with brown. "It has a curious habit, when disturbed, of moving its head in a broad circle from one side to the other, slowly, yet not continuously, but in a series of spasmodic starts." Feeds on Poplar, Willow, Plum, Oak and Apple.

LIMENETIS ARTHEMIS, Dru.

This larva resembles very closely that of *disippus;* it feeds on the leaves of the Willow, Aspen and Basswood; the eggs are laid, one upon a leaf, near the tip; the larva hatches in from seven to nine days; it undergoes two molts, after which it constructs a shelter of leaves in which to pass the winter; it comes out in the spring and feeds for a few days, after which it undergoes a third and fourth molt, changing into the chrysalid form in May.

APATURA CELTIS, Bd-Lec.

This larva, when first hatched, measures about .07 of an inch; body pale yellow, tapering slightly posteriorly; head large, black, slightly bilobed and without horns; the colors change slightly with each molt, the horns appearing after the first; the full grown larva measures about 1.15 inches; the body is a bright pea-green, tapering toward both extremities; the posterior extremity ending in two slightly diverging, slightly elevated horns; a longitudinal row of yellow spots on the dorsum; three yellow lines each side of the dorsal, the middle one being undulating. Head very broad, varying in color, cheeks prominent, with two very prominent branched horns or antlers on the top of the head; underside smoother, with soft colorless hairs; legs pale; pro-legs dusky at tips.

Found on the underside of the leaves of the Hackberry, where it weaves a little carpet and bends a part of the leaf around it.

Two-brooded; butterfly found from June to September.

APATURA CLYTON, Bd-Lec.

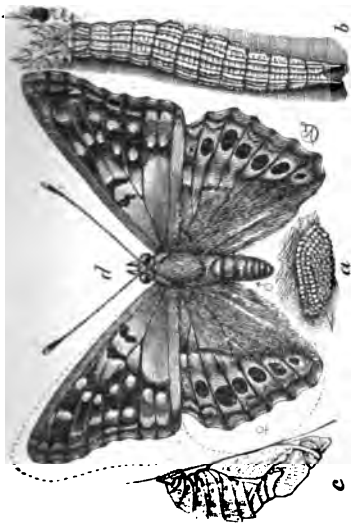

FIG. 15.—Apatura herse?—Butterfly, pupa, larva and eggs.

The very young larva differs from that of the *celtis* in its copal yellow, instead of black head; the full grown is of a bright green color, about 1.25 inches in length; a yellowish dorsal stripe, with a deep blue one each side of it bordered with yellow. Head deep, bluish, glassy green; the antlers large, branched and broad.

The eggs are laid in large clusters on the underside of the leaf, and when first hatched the larvæ are gregarious in habit, but separate after the first molt. This, like the preceding, feeds on Hackberry.

PAPHIA GLYCERIUM, D'bl'dy.

FIG. 16.—Paphia glycerium—Pupa, larva and work.

The young larva is of a light bluish-green color, thickly sprinkled with minute whitish papillæ, and larger ones of a light orange, and sometimes brown color, some of which disappear after each molt; head bluish-green; the full-grown measures 1.55 inches, tapering from the third segment toward each extremity; the color of the body and head are the same as in the young, and the papillæ are whitish; head bilobed, a pair of orange papillæ on the vertex, neck green, constricted; stomata brownish-yellow.

Found on the upper side of the leaf along the midrib, with the head toward

the base of the leaf. Food plant, wild sage (*Croton capitatum*): they usually cover the surface with a silken carpet, then draw the edges together.

The chrysalis is suspended from the under side of the leaf, attached to a button of white silk.

SATYRIDÆ.

This small family, embracing the wood-brown Butterflies, contains but few species that are important in economic entomology. The Caterpillars are cylindrical or more or less spindle-shaped, that is, tapering toward each extremity, smooth, and the usual color is green; the posterior end is notched, and the head entire or notched. They live mostly on grasses and sedges.

Libythea bachmannii, Kirt.

I have no description of the larva of this particular species at hand, but others of the genus, which is very limited, are unarmed, largely pubescent, elongate in form, and cylindrical; they appear to feed exclusively on the different species of Celtis.

Neonympha eurytris, Fab.

The eggs of this species may be found attached to either side of blades of grass. The young larva is about .08 of an inch in length, tapering from the middle toward each extremity, the last segment ending in two short tails; of a pinkish color, marked with seven crimson, longitudinal lines. Head large, brown, slightly depressed at the top. When full grown it measures one inch; much rounded or arched on the middle segments and tapering both ways; second segment constricted; the color on the back is yellowish-brown, and darker on the sides; covered with irregular, sharp tubercles, each emitting a short brown hair; it is marked by a dark-brown dorsal line; a dark patch on each side of each segment from four to eleven; above these, extending the whole length of the body, two parallel, wavy lines, the upper one dark, the lower one yellowish; on each side of each segment, from five to eleven, a dark oblique stripe; a yellowish basal ridge; tail tipped with red. Head yellowish-brown, covered with minute tubercles; flattened in front, truncate at the summit and slightly depressed, crossed by three rows of rounded brown spots. Feeds on grass. Chrysalis pale yellowish-brown; neuration of wings distinctly seen through the shell.

NEONYMPHA SOSYBIUS, Fab.

The eggs of this species are found on grass in July. The larva when first hatched is .09 of an inch long; color white, and marked by tuberculated longitudinal ridges; from each tubercle proceeds a clubbed white hair. Head large, shining black, bilobed. It molts four times, changing slightly in color, sometimes greenish, sometimes bluish; when full grown it is .75 of an inch long; of an emerald-green color, fleshy, thickest in the middle, tapering more decidedly posteriorly, with forked, divergent tails at the posterior extremity; the segments are creased transversely, and the ridges so caused are covered with fine yellow tubercles; also larger tubercles arranged in longitudinal rows, each emitting a short fine white hair, a clear dark-green stripe on the back, on each side of this a tuberculated stripe, and another at the edge of the dorsum. Head rather large, broad and bilobed, slightly depressed at the suture, somewhat flattened in front, covered with fine conical yellow points, arranged in longitudinal and at the same time transverse rows; ocelli black; mandibles brown. Feeds on grass.

Chrysalis, green; neuration of wings distinctly seen; length of Chrysalis state, thirteen days; the butterflies appear the first of September.

NEONYMPHA CANTHUS, Linn.

This larva also feeds on grass, but I have no description of it at hand.

NEONYMPHA GEMMA, Hub.

The larva of this species may be found in April, August and October; the young larva measuring .12 of an inch; somewhat spindle-shaped, tapering from the eighth segment, and ending in two divergent tails, which are thickest at the base and taper to a blunt point, from each point proceeds a white bristle; color white at first but changing to greenish; striped longitudinally with white. Head blackish-brown, from the corners of which proceed two pointed horns of the same color, each emitting one or two bristles; these horns seem to be in three sections, each smaller than the one below it. The full-grown larva measures .75 of an inch to the tips of the horns, these being almost on a level with the body, the face being bent downward toward the body; the larvæ of the different broods vary somewhat in color, from reddish-buff to yellowish-green; they have a dark dorsal line; in the summer and fall broods, this line is dark-brown, and in the spring brood, dark-green; in the former, an interrupted dark-brown line on each side of the dorsal; a dark-brown stripe along each side of the body; face and horns brown. Feeds on grass.

Chrysalis suspended from a white button of silk; yellowish, head case truncated and ending in two long three-sided palpi cases.

DEBIS PORTLANDIA, Fab.

The larva of this species is green, with two white dorsal lines and a white line on each side; the anal points prominent and white with a rosy tinge; a projection on the top of the head on each side, elevated so as to appear like ears; underside greenish, feet whitish-green. Feeds on grass.

SATYRUS ALOPE, Bd.

This larva is of a pale-green color, marked longitudinally with dark-green stripes, and having the anal extremity forked. Head round. Feeds on grass.

Chrysalis rather long, rounded on the sides, and the head notched.

SATYRUS NEPHELE, Kirby.

The eggs of this species are laid in August on blades of grass; the young larva when hatched is colored carnation and marked by carmine lines, it soon changes to a green with darker green lines; back and sides marked with long, curved, white bristles. The full-grown larva measured 1.20 inches, tapering from the middle toward each extremity; of a dull yellowish-green color, slightly darker at the sides; a dark green dorsal stripe; immediately above the feet a yellow line; each segment with about six creases; on the ridges so caused numerous fine white papillæ, each emitting a fine white hair, rendering the whole surface pubescent. Head emerald green covered with slightly conical papillæ of a slightly paler shade, each emitting a fine short hair, flattened slightly in front and rounded at the top.

The stages of this species are very slow, taking ten months from the egg to the imago state.

THECLA M-ALBUM, Bd-Lec.

The larva is yellowish-green, slightly pubescent, with a dorsal green line, seven oblique streaks on each side. Head black, yellowish on the margins and an obscure greenish tinge on the upper part. Feeds on various Oaks.

Chrysalis brownish-gray, greenish-gray anteriorly.

THECLA HUMULI, Harr.

This larva is green, with a dorsal yellow stripe, and a white stripe on each side. The Butterfly is found in July and August. Feeds on Hop Vine and Beans.

THECLA STIGOSA, Harr.

Larva flat beneath, somewhat convex above; of a rich velvety green color, with a yellowish tinge; slightly paler between the segments, and thickly covered with whitish brown tipped hairs, very minute; a dorsal stripe of a darker shade of green, and about three faint oblique yellowish lines on each side of each segment; the last two segments have each a yellowish patch on the sides; a faint yellowish raised line extends from the fifth to the terminal segments below the stomata; underside bluish green with a darker patch on the last two segments; feet whitish semi-transparent, pro-legs bluish green;

stomata pale red. Head small brownish-green, a black stripe across the front below the middle; below this a white patch drawn back and nearly concealed in the second segment. Found in June on Thorn (*Cratægus*), Oak, Burr-oak and Holly. Length ¾ inch.

Chrysalis dark reddish-brown with black markings and thickly covered with fine short white hairs.

THECLA CALANUS, Hub.

The supposed larva of this species has the following characters: Of a greenish-brown or reddish color, with short black hairs which proceed from black points so minute as to be invisible to the naked eye. These points are thickly sprinkled over the body, many of them not emitting hairs; body flattened on the back, with a pale reddish-brown raised line on each side or edge, an indistinct dark brown patch on the top of both the second and the last segments, which are connected by a line of the same color, the line being slightly narrower in the middle, and on this line from fifth to ninth segments are spots of dull greenish-gray; dull greenish-gray oblique lines on the sides of each segment; a dull yellowish raised line extends from the anterior part of the third segment on each side and meeting at the tip; underside greenish, with a faint bluish tinge; feet pale shining brown; pro-legs semi-transparent greenish-tipped faintly with brown. Head small, drawn into the second segment when at rest; moderately flat, bilobed, shining brownish-black, a pale streak running down the middle of the face, and a white line across above the mandibles. Found on Oak and Hickory in June.

THECLA ACADICA, Edw.

The larva is dark green, tapering from the mesothorax anteriorly and posteriorly, thickly covered with very short whitish hairs; a dorsal line of darker green than the body; dorsal region flattened with a slightly elevated yellowish line on each side or edge; faint oblique, yellow lines on each side below the stomata; under side similar to the upper, with the same white coating of short hairs. Feet and pro-legs same color as the body. Head small, drawn in to the second segment; pale brown and shining. Feeds on Willow.

THECLA SMILACIS, Bd.

The larva of this species is green, with two dorsal rows of small red spots, and on each side a row of somewhat larger and deeper red spots. Head and feet blackish. Feeds on Red Cedar (?) and Smilax.

Chrysalis grayish-brown, with abdomen more clear and reddish. Two-brooded, the butterflies appearfng in May and June and in August.

THECLA POEAS, Hub.

The larva of this species feeds on Cotton. It is slug-like in form, and feeds on the boll after the manner of the Boll-worm.

THECLA IRUS, Godt.

This larva is yellowish-green, with two interrupted dorsal lines and a pale green line on each side; also eight oblique pale green streaks on each side. Feeds on *Vaccinium*.

Chrysalis pubescent with two obscure longitudinal lines.

THECLA NIPHONG, Hub.

This larva, when young, is a pale transparent green, with four longitudinal white stripes; a white lozenge-shaped patch on the eleventh segment; body covered with short brown hairs. When it is full grown it is of the same deep green color as the leaves on which it feeds. A yellow stripe along the middle of the back and a white stripe on each side; a narrow white line close to the feet. Head brown.

Chrysalis thick, grayish, with two rows of small blackish spots: outside of these a row of more conspicuous rust-red ones. Found in June on various species of Pine.

THECLA TITUS, Fab.

The young larva is rosy-red on the upper side, sparsely covered with long hairs; under side, feet and pro-legs yellowish; head small, brownish-black. As it grows it gradually loses its rosy hue and turns greenish. When full grown it is dull green above, with a yellowish tinge anteriorly. The hairs are very short and thickly sprinkled over the body, each arising from a pale yellowish, slightly raised dot; on the back a streak of dark green showing through the semi-transparent skin from the second to the fourth segments; a row of irregular pinkish patches and spots on the back; second segment constricted; a wide ridge on the back from the third to the tenth segments, behind which the body is suddenly flattened; under side yellowish-green, sparsely covered with fine brownish hairs; feet and pro-legs greenish, semi-transparent. Head small, bilobed, shining black, with a streak of dull white across the front above the mandibles, which are reddish-brown. Length 0.70 inch. Found in May on Wild Cherry, Wild Plum, Oak, and *Euptatorium cœlestinium* the next February.

In its younger stages the larva is white, and so near the color of the buds on which it feeds that it is difficult to distinguish. It feeds on the inner part of the bud, cutting away the surface on one side and making a hole into which it thrusts its head, elongating its neck as it proceeds until it has devoured the whole of the inside, leaving only the shell. On the eleventh segment are two little openings, from which are protruded, at the will of the caterpillar, two little transparent hemispherical vesicles from which issue a drop, probably a sweet fluid, as it is eagerly watched for and swallowed by the ants in much the same manner as they take the honey-dew from the Aphides.

The *pseudargiolus* and *violacea* are the different broods of the same species, the latter being the spring brood and the former the fall, the eggs of one hatching the larvæ of the other.

CHRYSOPHANUS THOE, West.

This is quite a rare species. The egg is nearly round, flattened slightly at the apex and at the base; of a greenish-white color, and thickly indented. At the apex is a considerable depression; immediately around this the indentations are small, growing larger toward the base.

The larva feeds on Prickly Ash and *Polygonum.*

CHRYSOPHANUS AMERICANA.

The larva of this species is of a green color, and feeds on Sorrel. There are three broods of butterflies during the year. The chrysalis is usually suspended under a stone. The eggs are laid singly, one on a leaf.

LYCAENA SCUDDERII, Edw.

This larva, which measures about one-half inch in length, is of a dull velvety green color, thickly sprinkled with very minute brownish dots and fine whitish short hairs; a deeper green dorsal stripe, with paler margin; on the sides of the body are oblique lines of a paler shade, and below the stomata a cream-colored stripe extending from the anterior part of the third segment; under side darker than the upper, with a bluish tinge along the middle; feet and prolegs tipped with pale brown. Head very small, shining black, and drawn into the second segment when at rest.

Found on the upper side of the leaves of *Lupinus perennis,* during the first part of July; the butterfly appearing in August.

This caterpillar may be easily found, by the numerous ants seen running up and down on the stems of the plant. Probably, as is the case with the *pseudargiolus,* it is furnished with honey tubes, from which the ants take the honey.

LYCAENA PSEUDARGIOLUS, Bd-Lec.

This larva is green, a yellowish tinge on the back, pubescent; an interrupted dorsal red stripe; a greenish stripe below the stomata, and a darker, oblique stripe on the sides of each segment. Head black, concealed in the thorax when at rest.

Feeds on *Cimifuga racemosa* and the flowers and seed vessels of of *Actinomeris.* The eggs are laid singly, on the still undeveloped flower, in September, the butterflies appearing.

LYCAENA COMYNTAS, Godt.

The following description is taken, chiefly, from the notes of Mr. W. H. Edwards, published in the Canadian Entomologist, Vol. VII, (1876), p. 202.

The gentleman states that larvæ hatched from eggs deposited on two different plants, viz, Red Clover and *Desmodium,* in July, of those hatched on the *Desmodium,* but one was raised to maturity, and on the clover, ten. The former was green through all of its stages, and the chrysalis was green; the latter were reddish, and

the chrysalis sordid white. When young, they were very minute. At first, those on the clover lived on the tender leaves, each one eating out two or three parallel furrows; as they became larger, they seemed to feed exclusively on the calyces of the flowrets, sometimes burrowing into the head. On *Desmodium*, as no flowers were in bloom, they fed on the tender leaves and immature flower buds.

The larva from *Desmodium* was of an emerald green color; back rounded and sloping to last segment, which is much flattened; each segment rounded dorsally; the whole upper surface covered with fine white hairs and many yellow tuberculous points; along the middle of the dorsum a deep green stripe, in a depression; at base whitish line, edged with vinous on three or four segments after the middle; underside and legs pale green; head obovate, shining black, retractile. The chrysalis is placed on the leaf in such a manner, and is so near the color of the larva, that it can scarcely be distinguished from it.

The larva from clover was russet, varying towards vinous, interspersed with green. The butterflies appeared in August.

Feeds also on *Lespedeza capitata* and *Phaseolus perennis*.

LYCÆNA NEGLECTA, Edw.

This larva measures .45 of an inch in length, is distinctly annulated; of a dull yellowish-green color, sprinkled with minute dots from which proceed fine short hairs; the second segment is of a deeper green, with a blackish band on its posterior edge; a brownish dorsal line; a greenish band on the posterior edge of the fifth and eleventh segments; a greenish oblique dash on the sides of each segment from the fifth to the eleventh; twelfth and thirteenth much flattened; dorsal crest whitish. Butterfly found from May to August.

ANCYLOXYPHA NUMINTOR, Feld.

The chrysalis of this species may be found in July; it is rather long, tapering posteriorly; an obtusely rounded head, reddish ash colored, minutely sprinkled with brown dots.

PAMPHILA PHYLÆUS, Dru.

The full-grown larva of this species is about .7 of an inch in length, tapering toward each extremity; of a uniform dull green color, thickly covered with pale points; anterior part of second segment dark brown. The chrysalis is somewhat pubescent. The butterflies appear in July. Feeds on grass.

PAMPHILA DELAWARE, Edw.

The full-grown larva of this species measures 1 inch in length, tapering toward each extremity; it is of a bluish-white color; the collar black, ending in a black dot on each side; body thickly sprinkled with minute black tubercles; a black crescent on thirteenth and anal plate. Head white, smooth, oval, slightly bilobed, blackish on top and sides, a black streak down the middle of the

face and a shorter one of the same color each side of it. Feeds on *Erianthus alopecuroides*, in a leaf of which it wraps itself. The chrysalis is narrow, greenish-white, black at head and last segment. The butterflies appear in August.

PAMPHILA SASSACUS, Scudd.

This larva is green, head brown. Feeds on scrub-grass. The *P. peckius*, Kirby, also feeds on grass.

PAMPHILA MYSTIC, Edw.

The young larva measures .10 of an inch in length; it is of a yellowish-white color, more brownish posteriorly; head black, much larger than the second segment; in the full-grown the body is of a semi-transparent brownish-green, covered with minute whitish hairs, and sprinkled with dark colored dots; second segment with a whitish band across the top, the terminal segments paler than the rest of the body. Head dull reddish-brown, edged with black posteriorly; feet whitish, under surface paler than upper. Feeds on grass.

ATRYTONE HOBOMOK.

The young larva of this species measures about .10 of an inch in length; it feeds on grass on the inside of the leaves near the joints, drawing portions of them together with silk threads; when placed on a strong ribbed blade, the edge of which it cannot bend, it spins a few threads from rib to rib, behind which it remains.

NISONIADES LUCILIUS, Lintner.

The young larva is about .30 of an inch long, of a yellowish-green color, translucent, allowing the internal organs to be seen; a blue-green vascular line; body covered with numerous white spots and downy hairs; when full grown it measures .8 of an inch in length; two brown spots on the head; thoracic feet tipped with fuscous; pro-legs green. Chrysalis brown, somewhat transparent, growing less so, though never completely opaque.

It is two-brooded, possibly three. Butterflies found from May to September.

Feeds on *Aquilegia canadensis*.

NISONIADES JUVENALIS, Fab.

But little is known of the larva of this species; it is of a green color, with pale stripes. Head brown, heart-shaped. Chrysalis green, covered by a cocoon of leaves and threads. Feeds on *Glycine*, *Lathyrus*, Wild Indigo, and various Oaks.

PHOLISORA CATULLUS, Cram.

The larva of this species is green; head black. Feeds on Mountain Mint (*Monarda*).

EUDAMUS TITYRUS, Fab. Tityrus Skipper.

Eggs laid singly on leaves of Locust tree (*Robinia pseudacacia*) and Vicid Locust (*Robinia viscosa*).

The caterpillars hatch in July; when quite small they conceal themselves under a fold of the edge of a leaf, which is bent over their bodies and secured by means of a silken thread; when older and larger they take more than one leaf, drawing several together; the full-grown are two inches in length, of a pale green color, banded with darker green; neck red; head large, covered with minute tubercles slightly bilobed, of a dull red color; on each side of the lower part a large yellow spot. They live singly, and generally leave the tree on which they have fed and seek dry leaves or stubble, under which they weave a web and there undergo their transformations.

EUDAMUS BATHYLLUS, Smith. Bathyllus Skipper.

The larva of this species is very similar to that of the Tityrus Skipper, and feeds on *Glycine*, *Hedysarum* and Wild Bean (*Desmodium dillenii*). The butterflies are found in May and June.

SPHINGIDÆ—Hawk Moths.

By Mr. John Marten.

The larvæ of this family are mostly of large size, and usually of bright colors. All have sixteen legs, and generally there is on the next to the last segment a prominent acute horn; this is wanting in some species, but is then replaced by a tubercle.

When at rest they generally have the front part of the body raised up. They are cylindrical in form, and smooth or nearly so, not being thickly covered with hairs, as some caterpillars.

Many are marked with several (usually six or seven) oblique pale stripes on the sides. The term "oblique bands," when used in this group, applies to these; the word "horn" applies to the horn on the eleventh, or next to the last, segment.

These larvæ subsist on leaves, and are solitary—that is, not living in armies or families.

Sesia diffinis, Boisd.

Bright blue above, with the sides green and the under part dark colored. On the top of the first segment there is a transverse gold ridge, and on each side of all the segments except the second and third, there is a black dot. The horn is black and sharp. Head, light blue. Length, one inch and five-eighths. Found in June, feeding on the Bush Honeysuckle and the Fever-wort (*Frostium perfoliatum*).

They spin cocoons under leaves, and appear as perfect moths in July.

Sesia thysbe.

The larva of this species tapers toward the front, and is of a yellowish-green color, with deep green punctures. There is an interrupted vinous red dorsal ray, and obsolete lateral lines of pale green. Stomata white, and each with a second white point is placed on a vinous red spot. The horn is straight, rather short, ferruginous. Feet and color of head, ferruginous.

Found in June and August. It feeds on the Snowberry (*Symphoricarpus*) and different species of Hawthorn (*Cratægus*).

THYREUS ABBOTTII, Fabr.

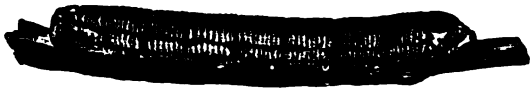

FIG. 17.—Thyreus abbottii. Moth and larva.

General color, reddish-brown. Its markings are variable, being sometimes marked with numerous light green patches, and at others with pale reddish-brown, with transverse striæ and a dorsal line of darker brown; also, a dark line along the side. No caudal horn, but instead thereof a polished tubercle. It feeds on the Grape-vine and the Virginia-creeper (*Ampelopsis quinquefolia*).

DEILEPHILA LINEATA, Fabr.

FIG. 18.—Deilephila lineata. Larva.

Color usually yellowish-green, with a subdorsal row of elliptical crimson spots, bordered below by a pale yellow line and surrounded with black. Another form of the larva is black, with a yellow dorsal line and a series of pale yellow spots and darker dots in the subdorsal region.

The stomata are yellow, black, or red surrounded with black. Caudal horn present. Length, when full-grown, three inches. Feeds usually on the common purslane, but has been found on apple, grape, watermelon and turnip leaves; also, on buckwheat.

The moth has dark olive-green fore-wings, and expands over four inches.

PHILAMPELUS PANDORUS, Hubn.

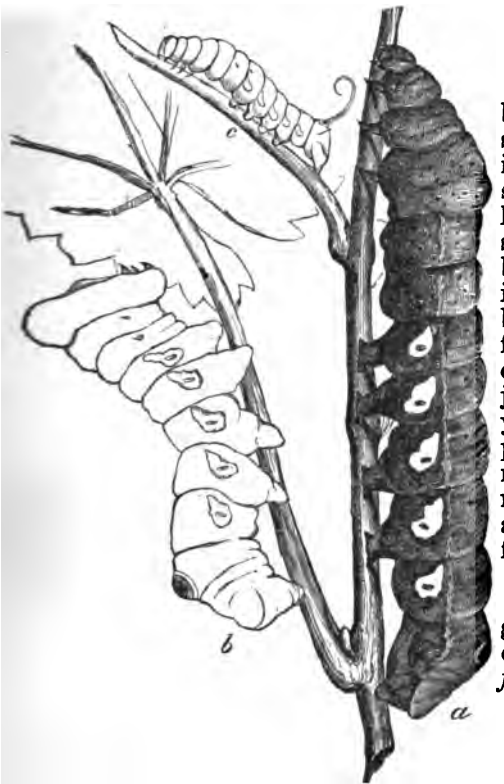

FIG. 19.—Philampelus pandorus. Larva.

The body is pinkish on the back, with the sides of a darker shade. On segments six to ten, inclusive, are cream-yellow spots, with a pale longitudinal line above them. The yellow spots are surrounded with black. On segments two to six, inclusive, are numerous small black dots, while each of the following five segments have only two. Head and first joint, dull reddish-brown. The young larva is green with a pinkish tinge, and has a long recurved horn, which, in the mature larva, is replaced by a tubercle. Length, nearly four inches.

Feeds on the leaves of the grape-vine and the Virginia-creeper (*Ampelopsis quinquefolia*).

PHILAMPELUS ACHEMON, Dru.

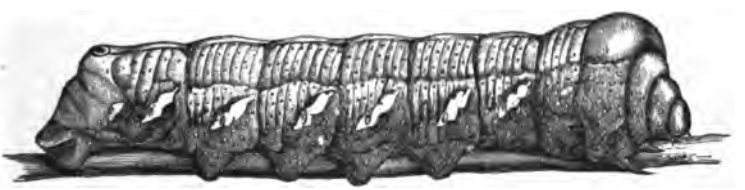

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FIG. 20.—Philampelus achemon.

The full grown larva is usually found during the latter part of August and fore part of September. It measures about 3½ inches when crawling, which operation is effected by a series of sudden jerks. The third segment is the largest, the second but half its size, and the first still smaller, and when at rest the two last mentioned segments are partly withdrawn into the third, as shown in the figure. The young larva is green, with a long slender reddish horn rising from the eleventh segment and curving over the back, and though I have found full grown specimens that were equally as green as the younger ones, they more generally assume a pale straw or reddish-brown color, and the long recurved horn is invariably replaced by a highly polished lenticular tubercle. A line of dull brown, deep and distinct on the anterior and indistinct on the posterior part of each segment, runs along the back, and another of the some color, continuous, and with its upper edge fading gradually, extended along each side. The six scalloped spots are cream-colored, the head, thoracic segments and breathing holes inclined to flesh-color, and the pro-legs and caudal plate were deep-brown.

The worm is covered with minute spots, which are dark on the back but light and amulated on the sides, while there are from six to eight transverse wrinkles on all but the thoracic and caudal segments. (Riley.) A magnificent larva found generally over the entire West, but never abundant, and hence never very injurious.

Feeds on leaves of Grape vine and American Ivy.

CERATOMIA AMYNTOR, Hub.

The body is pale green and strongly shagreened. It has six or seven oblique whitish bands on each side, the first and last of which are longer than the others. On the second and third segments there are four short, obtuse horns, which are also notched. The caudal horn is whitish-green, of medium length and slightly curved. The stomata are black, surrounded with yellow and crossed by a yellow line. Length about 3½ inches. It is found in May and June.

Feeds on the American Elm (*Ulmus americana*). The larva enters the ground to transform.

DAREMMA BRONTES, Boisd.

The larva is pale green, marked with seven oblique bands on each side, which are whitish, shaded with deep green. Head green, marked with two narrow reddish lines. Horn green, tinged with rosaceous, rather large and slightly arcuate.

Feeds on various species of Ash (*Fraxinus*), especially on *F. americana*, *F. simplicifolia*, and *F. platycarpus*.

Diludia jasminearum, Grote and Robinson.

Green, shagreened; with traces of white on the back, and marked with six distinct oblique white bands on each side. Sometimes there is, near the base of the horn, a seventh band, which is slightly rosaceous. Head and pro-legs green; true legs brownish. Stomata white, encircled with black.

Feeds on various species of Ash (*Fraxinus.*)

Chærocampa pampinatrix, Sm. and Abb.

Fig. 21.—Chærocampa pampinatrix.

The worm when first hatched is pale green, when full grown it presents the appearance in the figure; the horn on the posterior segment curved and and pointed. It is then pea-green, wrinkled transversely and covered with numerous pale yellow dots. An oblique cream-colored lateral band, bordered below with darker green, connects with a cream-colored sub-dorsal line bordered above with darker green, which extends from the head to the horn. There are five or six yellowish triangular spots along the back, each containing a smaller lilac spot. (Riley.)

Feeds on the leaves of the Grape vine.

It forms a loose brownish silken cocoon among the rubbish on the ground.

Macrosila carolina, Linn. The Tobacco-worm.

The general color of this worm is dark green, and the body is wrinkled transversely; it is paler on the back and marked on the sides with oblique white stripes and whitish dots. The stripes are edged above with bluish and short transverse black bands. Stigmata black with a yellow point above ad below, except the first and last, which are orange-yellow with a black central point; all are edged with blue. The terminal horn is tipped with rust color. When full grown it is from three to five inches long, and descends into the ground where it changes into a mahogany-brown chrysalis, two inches and a quarter in length, with a tongue case three-quarters of an inch long, standing out on one side like the handle of a pitcher. The early brood of these worms that transform into chysalides in July, come out as moths in a little more than three weeks, but the late ones pass the winter in the chrysalis state.

MACROSILA 5-MACULATA, Harr. The Tomato-worm.

The caterpillar is much like the preceding, from which it is not easily distinguished. Green, from three to five inches long, with oblique yellow stripes on the sides of the body. Feeds on the same class of plants as the preceding, such as tomatoes, potatoes, tobacco, etc. Transformations and chrysalis as the preceding.

MACROSILA CINGULATA, Clem.

The larva of this species is pea-green, with the back pale or yellowish. The head is marked on each side with brown. Two brown chain-like stripes run along the back, meeting at the caudal horn. Seven oblique brown stripes on each side, bordered below with cream-color.

Stomata surrounded by an oval brown spot, bordered with cream-color, and united before the oblique bands. Legs, tips of pro-legs, and horn brown, anal triangle bordered with yellow.

Found in August. Feeds on the Morning-glory.

SPHINX DRUPIFERARUM, Sm and Abb.

This larva can scarcely be distinguished from the European *ligustri*. The horn differs from that of *ligustri* in being black above and violet below.

"The larva of *ligustri* is described as follows: Color, lively green. On each side are seven oblique bands which are violet anteriorly, and white posteriorly. The horn is long, arcuate, shining black above and yellow beneath. The stomata are of a yellow orange color." (Guenée).

It is found on different species of Plum (*Prunus*) and the Hackberry (*Celtis occidentalis*).

SPHINX CATALPÆ, LeConte.

The larva of this species is very singular; it does not agree exactly with those of the tribe in which it is placed. The back is principally of a deep violet-black, and has four partial rings on each segment, and two white dashes so disposed as to unite themselves and form bands. On the border of each side there is a series of black points, immediately below which is a white ray, marked with white dots or points.

The lower borders of the sides are often yellow, as is the venter. Stomata black, head black, with two white lines. Horn cylindrical, straight and black, arising from a white patch.

Feeds on Catalpa leaves.

SPHINX KALMIÆ, Sm and Abb.

This larva is sometimes a bright clear green, and sometimes a yellowish green. It has on each side seven oblique yellow bands which are bordered above with obscure green. Stomata orange color. Horn bluish, arcuate.

It feeds on the Laurel (*Kalmia*), and the Virginia fringe-tree (*Chionanthus*).

SPHINX CHERSIS, Grote and Robinson.

General color pea-green, with a bluish head marked by two pale bands. There are seven bright yellow oblique bands on each side, edged above with blue. The seventh line is continued on the eleventh segment to the base of the horn. The horn is of medium size, curved downward at the tip, of a pale blue color, marked with blue points above. Anal plate triangular, raised and dotted with elevated black points. True legs bluish; black at the tips; pro-legs green with blackish tips.

Stomata, orange colored. Length, two to three inches. Food plant, the Lilac (*Syringa vulgaris*).

SPHINX CONIFERARUM, Sm. and Abb.

Dr. Fitch describes this larva as "eating the leaves of pine and other evergreens; a large cylindrical worm checkered with brown and white spots; with a whitish line along the middle of the back, and a short horn on its hind part."

According to the figures of Smith and Abbott, and the statement of Gueneé, it is without the horn on the eleventh segment.

Ordinarily it is of a bright green, with a white dorsal stripe bordered with rosaceous; along the lower border of the side there is a yellow stripe, between which and the dorsal band there is another yellow stripe. Head yellow, with dark rays. Stomata encircled with black.

In the work of Smith it is described as having the same form but grayish in color, with two lateral bands almost white alternating with black.

It is found on *Pinus palustris* and probably on other species of pines.

SPHINX HARRISII, Clem.

The larva is green, furnished with a dorsal ray of reddish-brown which is slightly arrested posteriorly. There is, on each side, a yellow stripe and a substigmatal white stripe. The thoracic feet are rosaceous, and there is a ventral stripe of the same color. It is found in September feeding on the White Pine (*Pinus strobus*).

SPHINX PINEUM, Lintner.

The larva of this species is similar to that of *S. harrisii*, and feeds on the leaves of the same tree (*Pinus strobus*).

LETHIA GORDIUS, Hubn.

Very similar to *S. drupiferarum*. It feeds on the leaves of the Apple.

ÆGERIDÆ.

By Mr. John Marten.

This family contains the slender-bodied clear-winged moths known as Ægerians. The larvæ, although true caterpillars, have a somewhat grub-like appearance; usually dull white, more or less tinged or varied with pale brown or pale dull yellow. The body is smooth or slightly downy, without spines or horn on the next to the last segment. They have sixteen feet, the abdominal pro-legs being usually very short and almost obsolete in some species (as *Æ. curcubitæ*); the body flattened beneath, broadest in the middle and tapering slightly toward the head, but more rapidly toward the posterior extremity. They are mostly under medium size, and are true borers, living in the interior or in the bark of trees and shrubs; a few species residing in the stalks or roots of herbaceous plants.

They usually form a rude oval cocoon of their borings, in which to undergo their transformations. The pupæ are brown, with transverse rows of short teeth on the abdominal rings.

Synopsis of the Species.

A. Boring in trees, shrubs and vines.

a. Boring in trees.

1 Balm of Gilead.....*Æ. tiliæ.*
2 Cottonwood ..... " *asilipennis.*
3 Maple, soft..... " *acerni.*
4 Peach and Plum roots..... " *exitiosa.*
5 Pear (under the bark) ..... " *pyri.*
6 Plum (under the bark)..... " *pictipes.*
7 Willows ..... " *anthracipennis.*

aa. Boring in shrubs.

1 Blackberry and Baspberry.... " *rubi.*
2 Currant and Gooseberry..... " *tipuliformis.*
3 Currant, wild black..... " *caudata.*
4 Lilac..... " *syringæ.*

aaa. Boring in vines.

1 Grape-vine roots..... " *polistiformis.*

AA. In the stems or roots of herbs.

1 Pumpkin and Squash vines... " *cucurbitæ.*

ÆGERIA EXITIOSA, Say. The Peach-tree Borer.

The larva is of a pale yellow color, with the second segment pale yellowish-brown. The head is of a reddish color, with black markings, divided into two lobes by a depressed line. On each segment there are a few wart-like spots, from which arise short brownish or reddish hairs. The stomata are small, roundish, and of a dull reddish color. The true legs are tipped with black; the pro-legs are yellow, with black dots. The last two segments shut into each other like joints of a telescope. Length, over half an inch; nearly a quarter of an inch in diameter.

The larva works downward beneath the surface of the ground, destroying the bark and sap-wood of the Peach and Plum trees.

It appears as a moth from June to October.

ÆGERIA CUCURBITÆ, Harris. The Squash-vine Borer.

Soft, fleshy, whitish, and tapering toward each extremity. Head small; color variable from pale to brown, with a black V mark on the face, retractile. The legs are short and the pro-legs are wanting, but are replaced by a double row of hooks beneath each segment. A brown, horny shield on the first segment back of the head. There is, on the lower edge of the abdomen, a row of orange-tinted tubercles, and the last segment is tipped with brown or black. Length, from one to one and a quarter inches.

Bores into the stalk of the Squash and Pumpkin, and kills the vine by devouring the interior.

It forms a cocoon in the earth, of a gummy substance, covered with rubbish.

ÆGERIA TIPULIFORMIS. The Currant-borer.

The larva is a whitish grub, with brown head and legs.

It burrows lengthwise in the stems of the currant, being found principally in the red currant, though the black currant and the gooseberry are attacked.

The moth appears in June.

ÆGERIA PYRI, Harris. The Pear-tree borer.

The larva burrows under the bark of the Pear tree, and has habits similar to *Æ. exitiosa.*

The moth has transparent wings, marked and fringed with purplish black, and with a dark coppery-tinted band across the tips. It has a fan-like brush at the tip of the abdomen, and a yellow band across the middle.

ÆGERIA ACERNI. Clem. The Maple Ægerian.

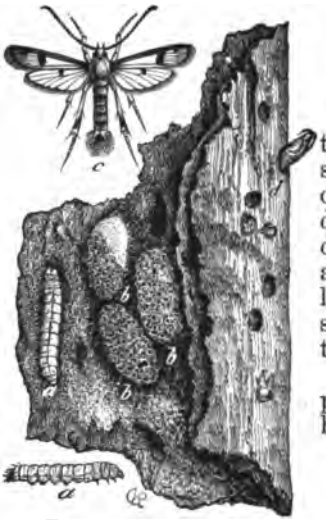

FIG. 22.—Ægeria acerni.

The larva is whitish, of uniform size to the eleventh segment, from which it tapers suddenly to the tip. It is sometimes dusky on the thoracic and last joints of the abdomen; transversely wrinkled, and has a deeply depressed line along the back, and a longitudinal wrinkle below the stigmatal line. Head small, reddish yellow; cervical shield not well defined. Stomata brown, the last pair being largest.

It bores under the bark of the soft Maples, above ground, and feeds on the inner bark and soft sap-wood.

ÆGERIA RUBI, Riley. The Raspberry Root-borer.

The larva is pale yellow, with eight shining piliferous spots on each segment. Head dark brown, with a few scattered white hairs. The cervical shield pale brown, horny. The true legs are tinged with brown; pro-legs with dark hooklets; length, .9 to 1.10 inches.

It burrows in the stems of raspberries and blackberries, entering about four inches above the ground, and burrowing into the roots where it winters. The next season it emerges about four inches above the ground from a different stem than the one it entered.

ÆGERIA POLISTIFORMIS, Harris. The Grape-root Borer.

The larva of this species is very similar to that of the Peach-borer (*Æ. exitiosa*), but is a little larger. It works farther beneath the surface of the ground, and, like it, only in the bark and sap-wood; length, when fully grown, from one inch to one and three-quarters inches.

It burrows in the roots of the grape-vine.

It forms a cocoon of a gummy silk, covered with particles of wood or dirt, within or adjacent to the root.

ÆGERIA CAUDATA, Harris.

The larva of this species lives in the stems of our Wild Black Currant (*Ribes floridum*).

ÆGERIA SYRINGÆ, Harris. The Lilac Borer.

Larva—length, 0.37 of an inch; body flattened, and somewhat margined at the sides, fusiform in outline; head small, triangular, reddish brown; first segment pale yellowish, brown above; other segments with a cellular dark brown spot on each side, leaving a pale median line. The lateral margin of each segment (each side) is furnished with a spine, which points laterly, and has a triangular base, but acute points; beneath, pale yellowish white; six thoracic feet. Width at widest part, over one-third the length.

It bores through both sap and heartwood of the Lilac (*Syringa vulgaris*).

ÆGERIA PICTIPES, G. and R.

The larva of this species is pale yellow, with the first thoracic segment brownish, with darker edges; head reddish brown, with a few scattered hairs. There is a lateral row of brown dots on each side, each dot giving rise to a whitish hair; also a row of two or three hairs across the back, on each segment. Length, .7 of an inch.

Burrows in the trunk of the Plum tree, in the bark and sap wood.

Pupa .63 of an inch in length; shining brownish yellow. The cocoon is formed of particles of wood, cemented together with silk and gum.

ÆGERIA ASILIPENNIS, Boisd.

The larva is found in the trunk of the Cottonwood (*Populus monilifera*).

ÆGERIA ANTHRACIPENNIS, Boisd.

The larva lives in the Willow (*Salix*).

ÆGERIA TILIÆ, Harris.

The larva lives in the Balm-of-Gilead (*Populus candicans*).

ZYGÆNIDÆ.

The larvæ of this family are sixteen-footed, usually greenish, and are short and cylindrical, the body being obtuse at each end.

According to Dr. Packard: "The head is very small, and when at rest is partially drawn into the prothoracic ring. The segments are short and convex, with transverse rows of unequal tubercles, which give rise to thin fascicles of very short and evenly-cut hairs, which are often nearly absent. They are either naked, as in Alypia, Eudryas and Castnia, or, as in the lower moth-like species, hairy, like those of the Lithosians and Arctians, in the next family. Before transforming, they usually spin a dense silken cocoon, though Eudryas and Castnia make none at all, and Ctnucha a slight one of hairs. The pupa of Zygæna, especially, is intermediate in form, between that of Ægeria and Arctia, being much stouter than the first, and somewhat less so than the last."

They pass the winter only in the pupa state.

ALYPIA OCTOMACULATA, Fabr.

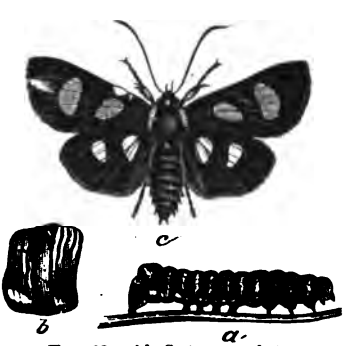

FIG. 23.—Al. Octomaculata.

This larva, when full grown, is marked with white and black transverse lines, there being about eight of each color on each segment. The contrasted white and black lines give the larva a bluish color. The middle of each segment is banded with orange transversely, which is faint on segments two and three, and conspicuous on four and eleven. The orange bands on the middle segments have each eight black conical elevated spots, from each of which arises a white hair. The head and shield on the first segment are of a shining orange red, dotted with black. The venter is black, variegated with bluish-white. The orange bands extend across the legless segments on the venter. The legs are black, and the false legs have two black spots on an orange ground at their outer base. A lateral white line, obsolete on the thoracic segments, runs along just below the spiracles; it is interrupted by the orange bands, and is plainest on segments 10 and 11; length, 1¼ inches. Feeds on the leaves of the Grape-vine.

The cocoon is formed without silk, on or below the surface of the ground.

PSYCHOMORPHA EPIMENIS. Drury.

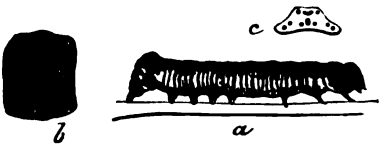

FIG. 24.—Psychom epimenis.

Ground color of larva white, banded transversely with four black stripes on each segment. The contrast of the black and white gives it a bluish appearance. The third and fourth stripes are usually farther apart than the other two, diverging on the sides to admit of two or more dark dots, placed one below the other. The eleventh segment has an elevation or hump, which, with the conical shield, anal plate, venter and legs, is dull, pale orange; all are marked with black spots, and the true legs are tipped with black; head, reddish yellow, inclined to orange, with eight principal and other minor black spots; venter pale, mottled with dark, and rows of spots on the leg joints. The stomata are round and quite small. Average length about one inch.

Feeds on the Grape-vine and Trumpet-creeper (*Bignonia radicans*).

Chrysalis reddish-brown, .37 of an inch long, rough; apex truncated with a large ear-like projection from each upper and outer edge.

EUDRYAS GRATA, Fabr.

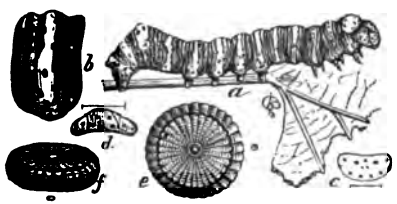

FIG. 25.—Eudryas grata. Larva eggs and sections.

According to Riley, the ground color of the larva is more or less bluish. Six irregular transverse bands to each joint, and about eighteen piliferous spots, six above and six each side, substigmatal; several additional black specks, the two middle stripes farthest apart, and the space between them orange. Head yellow, with nine black piliferous spots to each cheek; the upper one is accompanied by one or two black specks; also six such spots in pairs around the epistomal suture; there are also two on labrum, two on mentum, two on cardinal piece of maxillæ, and several on the legs. The stripes varying much in thickness, and the spots in size and conspicuity. The orange frequently quite deep, inclining to fulvous. The hairs from some of the spots quite obsolete, and not generally longer than the orange bands. When young, the color is pale yellowish-green, with no black bands and no spots on the head. Length, 1.5 inches.

EUDRYAS UNIO, Hubn.

The larva is similar to the above, and, according to Riley, the two species cannot, with certainty, be distinguished unless it be by the smaller size, the lesser prominence of the hump, and greater paleness medio-ventrally in *unio*.

Mr. Lintner makes a list of differences from which the following is taken—two *unios*, six *grata*:

The *unio* larva alcoholic specimens average 1.05 inches in length; the *grata* 1.29. *Unio* is the more heavily marked with black, both in its bands and dots. In none of the examples of *grata* are the

black bands broader than one-half the width of the intervening ones, while in the *unio* their average width is double that of the white. The spots on the caudal hump in *grata* are isolated, while in *unio* those in each row are connected by the black band to which they are united. The feature which should serve better than any other to distinguish the *unio* is the blackish coloring above the pro-legs and continued on the two following segments, the three piliferous spots above the pro-legs being connected with it.

It feeds on *Epilobium coloratum*, and, according to Dr. Fitch, on the Grape-vine. They bore into decayed wood or other soft substances to transform.

ACOLOITHUS AMERICANA, Boisd.

Larva tapering toward each end; sulphur-yellow, with six tufts of black prickly hairs placed transversely on each of the segments, the tufts on the dorsum being more distinct than those on the sides. The first segment is black with a yellow edge, and the spots on the eleventh and twelfth segments run together. Head small, brown, retractile, being usually concealed within the first segment.

When young they feed together, arranging themselves side by side, and beginning at the edge of the leaf and eating the softer parts, leaving the small veins; but as they become older they leave only the larger veins.

When full grown they disperse over the vine, or leave it, and spin tough whitish flattened cocoons.

They feed on the Grape-vine and Virginia-creeper.

ACOLOITHUS FALSARIUS, Clem.

These larvæ live solitary, or not more than two together on a leaf, in which they eat small holes. They live on the Grape-vine and Virginia-creeper (*Ampelopsis quinquefolia*).

BOMBYCIDÆ.—(Spinners.)

By John Marten.

The larvæ of this family are usually known as spinners, from the fact that many of them spin dense cocoons of silk in which to undergo their transformations.

They are generally thick and fleshy, and many of them densely covered with hair; others are covered above and on the sides with wart-like tubercles, from which arise tufts of simple spreading hairs. The hairs of many species are so roughened by minute points that in constructing cocoons the caterpillars weave them together without silk, like felt.

While many species are properly ranked among the injurious insects, some, as the silk-worms, are beneficial, as upon them depend the silk industry that is carried on in various parts of the world.

Utetheisa bella. Linn.

Although the moth of this species is so well known but little attention appears to have been paid by any one to its preparatory states, all we can say in reference to the larva is, that it is yellow, marked with black and white rings, and that it feeds on the blue lupines, and is found in the seed-pods of the Rattle-box (*Crotalaria.*)

Callimorpha fulvicosta, Clem.

The larva is velvety black above, pale bluish-gray, speckled with black beneath, a bright orange-colored median line on the back,

somewhat paler at each end. A more distinct broken stigmatal line

FIG. 26.—Callimorpha fulvicosta. Larvæ.

with a light-blue line below it. It is covered with large, steel-blue, polished tubercles, from which arise short stiff yellow hairs. Head shining black, with a few black hairs. True legs black, but pale; the joints on the inner sides and pro-legs black, with extremities and inner sides flesh-colored. Average length .9 of an inch. Var. of *LeContei*.

CALLIMORPHA LECONTEI, Bd.

According to Saunders, the larva of this species is 1.10 inches in length; head rather small, black and shining, with a few short hairs; body black above, with transverse rows of shining wart-like tubercles,

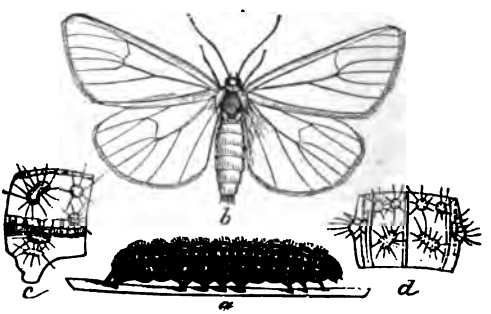

FIG. 27.—Callimorpha fulvicosta. Moth, larva and sections.

from which arise tufts of short spreading hairs. On the back a bright yellow dorsal stripe and a wide band of the same color on each side of the body, the latter intersected with streaks and centered with a broken band of black. About half way between the dorsal and lateral stripes is a row of pale whitish dots forming a faint

broken line. Under surface dirty grayish white, with streaks and dots of brown; feet black, fore-legs dirty white on inside, with a patch of shining black on the outside of each. Feeds on various herbaceous and shrubby plants.

ARCTIA PHALERATA, Harris.

Caterpillar black, with pale yellow dorsal line, which is sometimes almost white. There are transverse rows of wart-like tubercles, from which arise short white hairs, radiating in all directions. There are two broods each year.

It feeds on grass, corn, peach, elm and grape leaves, *Polygonum aviculare* and pepper-grass (*Lepidium virginianum*).

ARCTIA ARGE, Drury.

Color dark brown, with five pale or yellow, longitudinal stripes; each segment bearing a transverse row of brownish yellow tubercles, from each of which arises a tuft of brown hairs.

Feeds on plantain and corn.

ARCTIA ISABELLA, Sm. and Abb.

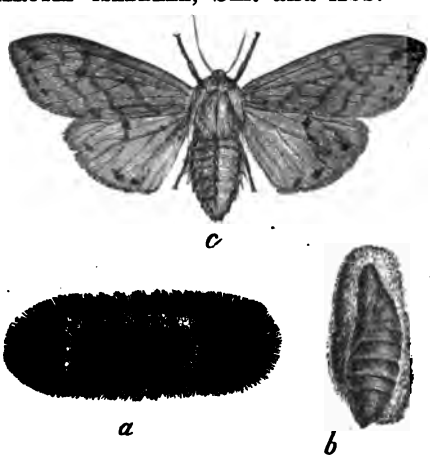

FIG. 28. Arctia Isabella. Moth, chrysalis and larva.

The larva of this moth is familiarly known as the "Hedgehog" Caterpillar, from the fact that, when taken up, it rolls itself into a ball, and the thick masses of hairs with which the body is covered project outward, in every direction, like the quills of that animal. It is to be met with in gardens, walks and other places, during the last of August, seeking a place of shelter in which it may pass the winter. It feeds upon the leaves of clover, dandelion, plantain, etc., until the approach of winter, when it creeps under stones, boards, brush, or anything thing that can give it shelter; making an oval cocoon of its hairs the following April or May, and comes out as a moth in June or July. But in warmer latitudes, there are probably two broods, instead of one. The hairs on the first four and last two segments of the body are black, but the rest are dark red. Head and body black.

ARCTIA ACRÆA, Smith.

Yellow, covered with black or brown hairs on the back and fore part of the body; of a lighter brown on the sides. The hairs grow in radiating clusters from yellowish warts placed in transverse rows across the body. The sides of the body are shaded with black and there is a blackish dorsal line. Stomata white, distinct. Length, 1¾ inches.

Feeds on the tender leave of cultivated plants and many indigenous weeds and grasses.

ECPANTHERIA SCRIBONIA, Stoll.

The larva of this species is black above and brownish on the sides. The sutures between the segments are reddish-brown, showing plainest when the larva is curled up. Head black, with brownish sides. Cervical shield, brownish black. It is thickly covered with roughened warts from which arise numerous jet black barbed hairs or spines. Venter, dull purplish brown, legs of the same color. Length, 2½ inches.

Feeds on Sunflower (*Helianthus decapitatus*) and different species of Plantain and Willow.

SPILOSOMA VIRGINICA, Fabr. The common Yellow bear.

The full-grown larvæ vary greatly in color. They may be found of a pale cream-color, yellow or brown. There is always a longitudinal black line on each side, and a transverse black line between each of the segments. The head and feet are ochre-yellow. Venter, blackish. It is covered with hairs of a foxy red or light brown color which spring from dark yellow warts, of which there are ten on each segment. Two broods each year. Length, about 2 inches.

It is a very general feeder, being found on a great variety of plants, as Butternut, Lilac, Peas, Beans, Gooseberry, Sorrel, Convolvulus, Corn, Currant, Sunflower, Smartweed, Plantain, Verbena, Geranium, etc.

HYPHANTRIA TEXTOR, Harris.

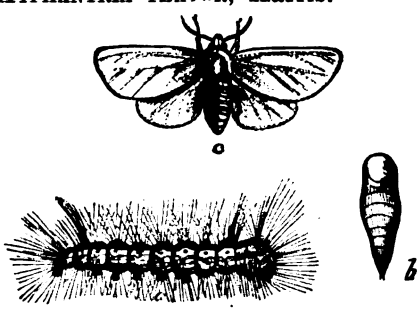

FIG. 29.—Hyphantria textor.

The ground color of the larva is greenish-yellow but is somewhat variable. It is black above with a median pale line. Sides speckled with black except along the sub-dorsal and stigmatal line where longitudinal yellow patches are left clear. Covered with long hairs, which arise from black and orange colored warts or tubercles. There are 12 tubercles on each segment, the four on the back being black, while those on the sides are orange. The hairs are dirty white or reddish brown. Head, black, with a white labium and the base of the antennæ white. Venter, dusky or brownish. True legs, black; pro-legs smoky black, with orange tips. Stomata, light yellow. Length, 1.10 inches.

Food plants, Apple, Pear, Cherry (wild and cultivated), Black and White Walnut, several species of Hickory, Willow, Ash, Elm, etc.

HALESIDOTA TESSELLARIS, Smith.

Larva pale yellow, with dusky tubercles from which rise fascicles of divaricating hairs of a pale yellow color. The row on the dorsum is erect and darker; the lateral ones spreading. On the second segment are two long pencils of tawny or orange colored hairs, before which on the first segment, are four shorter pencils of white hair. The third segment bears two long ferruginous or

orange colored pencils and two shorter white ones on the side. The eleventh segment has two long white pencils directed backward. Venter bluish-white, marked with a tinge of yellow. A row of fuscous spots on the lower lateral border. Head, black. Length, 1¼ inches. Feeds on the leaves of many of our forest trees.

ORGYIA LEUCOSTIGMA, Sm and Abb.

The caterpillar is of a bright yellow color, sparingly clothed with long and fine yellow hairs on the sides of the body, and having four short and thick bush-like yellowish tufts on the back on the

FIG. 30.—Orgyia leucostigma. Moth.

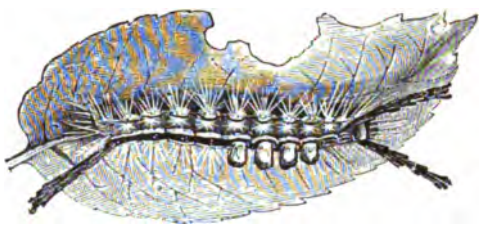

FIG. 31.—Orgyia leucostigma. Larva.

fourth, fifth, sixth and seventh segments. On the first segment are two long black pencils of hairs that extend forward, somewhat diverging. From the top of the eleventh segment is a single black pencil extending backward. Head and two little retractile warts on the ninth and tenth segments coral read, and a narrow dorsal stripe of black or dark brown, with a wider lateral stripe a little lighter.

There are two broods of the worms, in June and September. They feed upon the leaves of Apple, Rose, Oak, Maple, Elm, Plum, Pear, Horse-chestnut, Black Walnut, Larch and Spruce. The cocoon is attached to a leaf, which is also attached by silken threads to the twig. The moths issue from the cocoons in about ten days from the time the larva enters the chrysalis state.

LIMACODES LATICLAVIA, Clem.

The larva feeds on Maple.

EMPRETIA STIMULEA, Clem.

Larva—"Body semi-cylindrical, truncated obliquely before and behind, with a pair of anterior long fleshy, subvascular slenderly spined horns, and a smaller pair beneath them. The superventral row of papillæ are rather large and densely spined. After the last moulting, the longer horns become moderate in length. The portion of the body between the anterior and posterior horns is of a fine bright green color, bordered anteriorly and superventrally by white, which is again edged by a black line. The horns, papillæ, and anterior portion of the body, are reddish brown, with a small yellow spot between the anterior horns, while the posterior pair are placed in a yellow patch."—(Morris.)

The spines with which the horns are supplied, produce a sensation similar to that produced by nettles when they come in contact with any portion of the body where the skin is thin; this sensation, however, can seldom be felt on the palms. For this reason this caterpillar is one of the several species that are familiarly known as *stinging caterpillars*.

It feeds on a great variety of plants, among which are fruit trees, the Rose and Corn.

THYRIDOPTERYX EPHEMERÆFORMIS, Haw.

The eggs from which the larvæ of this species are produced are deposited inside of a sack-like silken case, in which they remain during the winter, hatching the next May. As soon as the worm

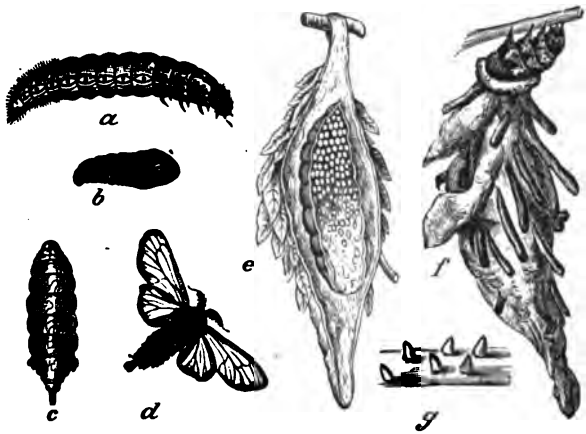

FIG. 32.—Thyridopteryx ephemeræformis. Moth, pupa, larvæ, eggs, etc.

leaves the case it begins to spin one for itself, which covers and protects all but the anterior part of the body, the posterior part of the case being pointed. It carries this erect in the air as it feeds, adding to it as growth requires a more commodious apartment until it becomes too heavy to be borne in this way; after this the case is pendant. About the middle of summer the worms attain their full size, when they quit the trees upon which they have been feeding, and wander about, and it is at this period only that they push their migrations beyond the tree where the eggs were deposited. As the female is without wings, and does not leave her case until after the eggs are placed in position, it is evident this restless disposition when the larvæ are full grown is the only provision nature has made for the diffusion of the species. After their wanderings cease they attach the case or follicle to a twig of some tree or shrub by a strong cord of silk, and change to chrysalides; the male the smaller, showing the cases of the future wings, but the female having more the shape of the caterpillar. At the proper season, the perfect insects issue from there to deposit eggs that pass through the cycle of changes already given.

DATANA MINISTRA, Walk.

The larva of this species, when fully grown, may be described in general terms as black, moderately hairy, with four conspicuous yellow or white stripes on each side of the body, and with the shield

FIG. 33.—Datana ministra. Moth, larva and eggs.

or top of the first segment behind the head of a bright wax-yellow color. Length, about two inches.

Dr. LeBaron found that the colors and characteristics varied according to the food-plant on which it subsisted, and describes three varieties, as follows:

That feeding on the Apple: "Body black, with four narrow, pale yellow stripes upon the sides, narrower than the intervening spaces. Upper side of the neck or first segment deep wax-yellow. Hairs on the body whitish, about as long as the width of the body."

That feeding on the Sumach: "Body black; in some specimens, very dark red, with bright lemon-yellow stripes as wide as the intervening spaces. Top of neck black, sometimes with a narrow anterior margin of yellow. Hair same."

That feeding on the Walnut: "Body wholly black, without stripes. Top of neck black. Hairs pure white, twice as long as the width of the body."

These caterpillars have only eight pro-legs, the anal pair being projected horizontally backward and changed into conical processes which are abruptly cut off at the tips, and are not used in walking. When disturbed they have a curious way of elevating the head and tail at right-angles with the body, sometimes making them meet over the back, thus forming a loop or ring. Gregarious.

They feed on a variety of plants, such as the Black Walnut, Apple, Sumach, Oak, Hazel, Cherry, Quince, Hickory, Black Locust, Birch, Basswood and Thorn.

DATANA PERSPICUA, G. & R.

This species is now believed to be the same as the Sumach variety of Dr. LeBaron.

NOTODONTA CONCINNA, Sm. & Abb.

The young caterpillars are similar to but lighter than the mature ones. The latter are greenish-yellow or yellowish-brown; the head and a prominent hump on the back of fourth segment coral-red.

Body striped longitudinally with dark brown or black lines; or, considering all the colors, with yellowish, white and dark lines. A double row of black spines along the back, and five black points on each side of the segments, three above the spiracles and two below. The back is marked with five narrow black lines; sides, from the fifth to the tenth segment inclusive, whitish with black lines above the spiracles. First three segments spotted with black and white. Last segment spotted with black. Legs black; pro-legs black and yellow. Length 1.25 inches.

Feeds on Cherry, Plum, Pear, Apple and Rose leaves.

NOTODONTA UNICORNIS, Sm. & Abb.

The larva of this species is brown or reddish-brown; the second and third segments green; the fourth segment is furnished on the upper side with a long, horn-like process, which gives name to the species.

Feeds on Plum, Apple, Dogwood, Alder and Wintergreen.

EDEMA ALBIFRONS, Sm.

Prof. Riley describes the larva of this species as being of a bluish-white ground color, marked longitudinally with yellow stripes and fine black lines, with the head and a hump on the eleventh segment either light coral-red or of a dark flesh color. It usually keeps the end of the body elevated when at rest. Enters the pupa state in September, the moth appearing the following April.

DRYOCAMPA STIGMA, Fabr.

This larva is of a tawny orange-yellow color, covered with white granules or dots. A medio-dorsal dusky strip along the back, and on the posterior part of each segment is a dusky band which is widened at the stomata. Tubercular spines black and longer than in the other species. The dorsal rows have two or three smaller prickles branching from them. Two horns on the second segment blunt, black and movable. Stomata black encircled by white. Head ocher-yellow. Length about two inches.

Feeds on the Oak.

DRYOCAMPA SENATORIA, Sm. & Abb.

The ground color of the larva is oval-black alternating with orange-yellow stripes, a black stripe being along the center of the back and a yellow one each side of it, of the same width. Below these is another black stripe of greater width, and below this are two yellow stripes with a black one between them in which the breathing pores are placed, the lower two being more regular than the one on the back. A row of yellow spots below and connected with the lowest yellow line. Venter, black with an interrupted yellow central line. On each segment are six shining black conical spines some of which are occasionally forked at the tip. On the second segment are two black horns projecting upward and forward. Head, true legs and pro-legs black. Length two inches.

It feeds on the Oak.

DRYOCAMPA PELLUCIDA, S. & A.

The larva is variable in color, being of a pea-green, a grayish or yellow-green or blackish. Body covered with small pearly-white granules, or points. A narrow blackish dorsal line and a dusky or brownish stripe each side. On each side is a whitish streak in the lower margin of which the stomata are situated. On each segment are six black spines the dorsal ones sometimes being replaced by black dots. Two long black horns on the second segment pointing forward. Head and true legs, dull yellow; pro-legs black with white points. Length, two inches.

Feeds on the Oak.

DRYOCAMPA RUBICUNDA, Fabr.

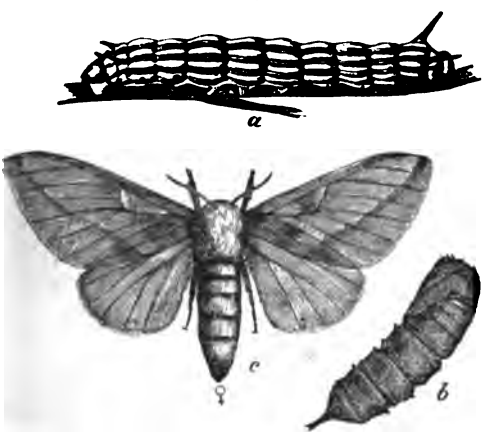

FIG. 34.—Dryocampa rubicunda. Moth, pupa, larva.

The color of this larva is also variable, usually of a pale yellowish-green above with seven darker green longitudinal stripes, the mediodorsal one being the darkest. Segments, two, has two blunt black horns projecting forward; two lateral rows of shorter spines, one above the stigmatal line, pointing backward, most prominent on segments 10 and 11 which are here somewhat dilated and rose red. The dorsal spines are small and black, being most prominent on segments 11 and 12. Stomata oval, black with a pale central line. Venter, deep green or blackish with a pale central line. Legs, greenish or yellowish marked with black. Length 1½ inches.

Feeds on Soft Maple and Oak.

EACLES IMPERIALIS. Hübner.

The color of the larva varies from brown to green and is clothed with gray hairs. There are are six rows of spinous tubercles, two dorsal, two lateral, and two sub-lateral, which are greenish white or yellow, conical and end in two or three short black prickles. The dorsal pairs of tubercles on segments two and three are nearly a quarter of an inch in length, curved backward, and are of a deeper yellow color than the others. The anal shield and plates on anal pro-legs black, with numerous raised yellow or orange colored dots. Head, varying from light yellow to dark brown. Stomata oval, dark, margined with yellow. Length about 3 inches.

It feeds on Sycamore or Button-wood, Oak, Liquidamber, Pine, Maple and Juniper.

CITHERONIA REGALIS, Fabr.

The larva is of a green color with a yellowish cast and smooth. There are on the first segment two straight, serrate, orange colored horns and four small black ones, each with a yellow base. The second segment has eight spiny horns, four large orange colored tipped with black, and four small and black, the larger ones curved backward; on the front of the segment are two large black spots. The third segment has the horns arranged as in the second, with the black spots much larger extending to near the margin of the second. The remaining segments each have six black compound spines, except the eleventh, which has but five, and the twelfth, which has seven, the number varying on the last two; the spines arise from a somewhat elevated sky-blue patch, which sometimes forms a distinct transverse ridge, and are slanted backward. A lateral row of large cream colored oblique spots on the anterior part of each segment from four to eleven inclusive. Head and legs orange colored, the true legs with black tips; pro-legs with a black mark extending upward on the body. Length from five to six inches.

It feeds on the Hickory, Black Walnut, Butternut, Sumach and Persimmon.

CLISIOCAMPA AMERICANA, Harris.

This caterpillar is generally known as the Apple-tree Tent-caterpillar, and its web may be found in the early Spring, at first small but rapidly increasing until it spreads like a tent over the larger

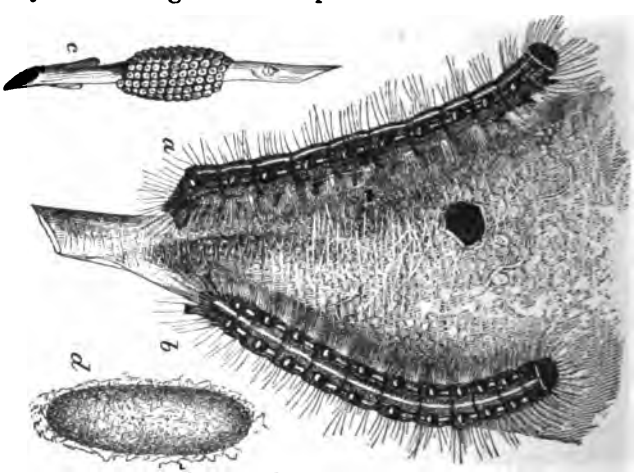

FIG. 35.—Clisiocampa regalis.

branches; they are sheltered by this tent from the sun and inclement weather when not feeding, a large number of them living together. They come out twice a day to feed, once in the forenoon and once in the afternoon.

When first hatched the worms measure less than one-tenth of an inch in length and are about the diameter of a common sized pin, tapering slightly from the head backward, general color black, feet

pale, body sparsely covered with fine whitish hairs. They pass through about six moults, the color and markings varying after each successive moult.

When full grown the worm is of a deep black color and sparsely clothed with fine soft yellowish hairs, which are of unequal lengths and rather more numerous toward the head; those on the head turn forward partially shielding the head. There is a white dorsal stripe, on which are situated numerous black dots, starting from the posterior margin of the first segment and traversing the whole length of the body posteriorly; the anterior margin of the segment is white and two small square yellow spots are on the top; on each side of the dorsal stripe are numerous fine crinkled black lines on a yellow ground; a transverse oval blue spot on the side of each segment and situated anteriorly to it a deep velvety-black one; the lower region of the side is mottled with blue and yellowish, the latter in short uneven lines. The underside of the body is black, pro-legs tipped with white. Head black, covered with short black hairs. Length two inches.

The favorite food plants are Black Cherry and Apple, on the leaves of which they feed until they are nearly full-grown, when they leave the tree and disperse in different directions eating whatever food comes in their way that is palatable to them, each one finally seeking a sheltered nook or crevice in which to transform. The cocoon is oblong-oval, yellow.

The eggs are firmly glued together, forming a mass around the twig near the end, and are thickly covered with a glutinous coating which protects them from the weather.

CLISIOCAMPA SYLVATICA, Harr.

FIG. 36.—Clisiocampa sylvatica.

This, like the preceding, is a tent caterpillar and is known as the Tent-caterpillar of the forest. They are hatched from eggs placed in a mass around a twig something similar to those of the *Americana*, though being placed more regularly, and the ends of the mass are in a true circle, making a band around the twig of uniform diameter.

As soon as the worms come forth they commence spinning a web which is much less conspicious than that of the orchard caterpillar, attaching it closely to the branches and trunks of the trees infested; they also congregate on the outside of the web when they are about to pass through a moult. When about half-grown they leave the tree on which they have been feeding and travel singly from one tree to another or from place to place in search of a sheltered retreat in which to spin a cocoon and which they finally form by drawing the edges of a leaf together or by fastening together several leaves; it also spins a cocoon in a similar form and situation to the *Americana*.

This larva reaches maturity after the fourth moult. It is then of a pale blue color and in form and size closely resembles the common species. The following is Dr. Fitch's description:

"Pale blue tinged with ashy greenish low down on the sides, and every where sprinkled over with black points and dots. Along the middle of the back is a row of white spots and on each side of these an orange yellow or tawny reddish stripe, and a paler cream yellow stripe lower down on each side, these stripes and spots being margined with black; and each segment has two elevated black points upon the back, from each of which arise four or more coarse black hairs. The back is clothed with numerous fine fox colored hairs and low down on each side are numerous coarser whitish ones. The head is of a dark bluish color freckled with numerous black dots and clothed with short blackish and fox colored hairs. The legs and pro-legs are black and clothed with short whitish hairs."

It feeds on Oak, Apple, Plum, Peach, Cherry, Walnut, Hickory, Rose, Poplar, Ash and Walnut.

ACTIAS LUNA, Linn.

FIG. 37.—Actias luna. Larva.

The caterpillar is of a clear apple-green color inclining to yellowish above and bluish below. Each segment with six vermillion-red tubercles having a pearl or silvery reflection and with several yellowish bristles rising from them. The whole body is sparsely clothed with yellowish hairs. A longitudinal substigmatal yellow line on each side from 1st to 10th segment and transverse yellow lines on the posterior edges of segments 4 to 10 inclusive. Spiracles, deep reddish brown. At the posterior extremity of the body are three brown spots edged with yellow. Head bluish green, with shades of brown above and on the sides. True legs brown, with yellow at the base; pro-legs brown, with a black line on the outerside. Length when extended, three inches or more.

It feeds principally on the Hickory and Walnut, but is found on the Sweet Gum, Beach, Birch, Willow, Plum and Persimmon.

ATTACUS (TELEA) POLYPHEMUS, Linn.

When full grown the large fleshy larva of this species is from three to three and a half inches in length, of an apple green color, marked with bright colored tubercles and abbreviated lines. On each segment there are six bright orange tubercles which reflect silvery and purplish hues; the sub-dorsal and stigmatal are connected by little sulphur-yellow oblique bands; each dorsal one gives rise to two or three straw-colored bristles. The front margin of the first segment is sulphur-yellow, with a band of slate color between

it and the head. Head and six anterior feet clay-yellow or bright brown. Anal segment edged with purple. Stomata oval, brown encircled by yellow.

The colors vary considerably in the different stages of its growth. At first it is yellow, becoming greener as it increases in size; in the second stage the tubercles are thick, slightly bell-shaped, green at base, yellow in the middle and orange-red at top.

Feeds on Oak, Walnut, Hickory, Basswood, Elm, Maple, Hazel, Apple, Rose, Quince, Thorn, Choke-cherry, Poplar, Sycamore, Birch, Honey-locust, Blueberry and Willow,

ATTACUS (SAMIA) CYNTHIA, Drury.

This larva when full grown is of a light bluish-green with two dorsal, two sub-dorsal and two lateral rows of tubercles which are blue, the lateral rows having black at the bases. The body has numerous spots of dark green which are most distinct laterally and ventrally. There are also six longitudinal rows of black or blue-black spots, Head and anterior legs yellowish-green; pro-legs and anal joint orange-yellow.

It feeds on Ailanthus and Plum.

ATTACUS PROMETHEA, Drury.

FIG. 38.—Attacus promethea. Larva.

This is a pale bluish-green larva covered with a faint whitish bloom except at each end; and with six rows or tubercles. The four dorsal ones on the second and third segments and one on the eleventh, are very large and prominent while the others are mere polished black or blue-black rounded elevations; the four on segments two and three are first yellow with a black base, but soon become red; that on segment eleven retains its yellow color and black base. The true legs and the anal shield are yellowish; pro-legs yellow with a black spot on the outerside of each. Often there is a black spot on each side of the venter. Stomata narrow and brown. Length when extended, more than 2 inches.

It feeds on the Ash, Sassafras, Wild Cherry, Tulip-tree, Sweet-gum, Spicebush (*Lindera*), while in addition to these its cocoons have been found on the Lilac, Maple, Plum, Poplar, Azalea, Cephalanthus, Snowdrop-tree (*Halesia*), Barberry, Birch and Bayberry (*Myrica*).

ATTACUS (SAMIA) CECROPIA, Linn.

The larva is pale green, with two rows of dorsal tubercles and two lateral rows on each side. The dorsal tubercles on segments 2 and 3 are coral red, the remaining dorsal ones are yellow, except-

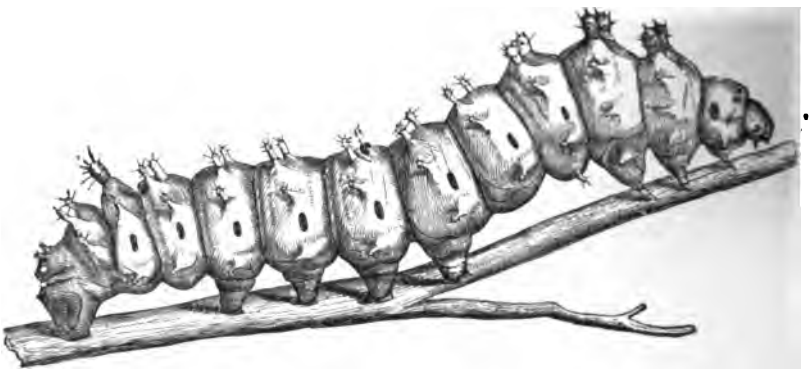

FIG. 39.—Attacus (Samia) cecropia. Larva.

ing those on the first and last segments, which are blue, the lateral tubercles are also blue; those on the first segment are each armed with two black hairs; those on second and third are each tipped with a spine, around which are six black spines, and around the base of the tubercles are seven or eight obtuse spines. The fourth pair of tubercles have eight black warts near the base and a spine on the summit, surrounded by six black spines; the fifth pair each with five spines; the sixth, seventh, eighth, ninth and tenth pairs each with two horizontal spines; the eleventh pair with six spines, and near the base on the anterior part are several black blotches. The lateral tubercles are blue, and also spined. True legs greenish yellow, with black, incurved claws; pro-legs greenish yellow. Length three inches or more. Spiracles narrowly elliptical, cream-colored, with black borders. Terminal segment with six blue spiny tubercles.

It feeds on Wild Cherry, Apple, Plum, Red Currant and Elder.

HYPERCHIRIA IO, Fabr.

FIG. 40.—Hyperchiria io. Larva.

This is a spiny, pea-green larva; the spines situated as follows: Eight on joints 1, 2, 3, 4, 5 and 10; five on 11, and seven on 12. The branching spines more yellowish, tipped with black; those below the stigmatal line and on the thoracic and anal joints are tipped with pale bristles; the others mostly end in a stout point. A substigmatal white or brownish line edged above and below with lilac or red. Stomata oval, yellow with brown rings. Venter green with scattering white hairs and two pale lilaceous patches containing green piliferous dots. True legs pale brown with whitish bristles; pro-legs with brown hooks. Head polished green, with black ocelli. Length two inches.

It feeds on False Indigos (*Amorpha* and *Baptisia*), Sassafras, Black Locust, Indian Corn, Wild Black Cherry, Willow, Oak, Birch, Sweet-fern, Currant, Apple, Clover, *Lespedeza*, Snow-berry, Ash, Elm, Hop vine, Balsam, Poplar, Balm-of-Gilead, Dogwood, Choke-cherry and Cotton.

EUCRONIA MAIA, Drury.

The larva is brown-black, with six spined tubercles on each segment. excepting on the 11th, where there is only one medio-dorsal tubercle; an additional one is placed sub-vertically on segments 1

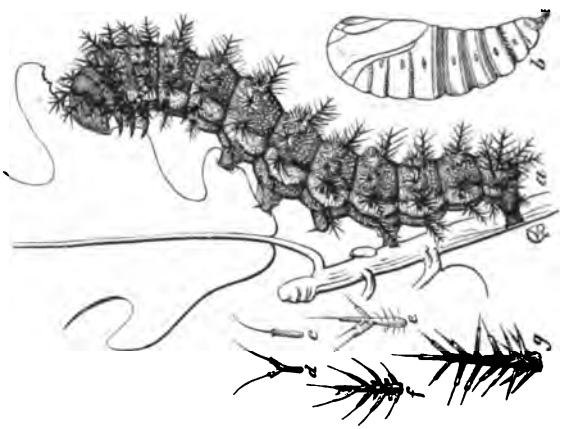

FIG. 41.—Saturnia maia. Pupa and larva.

to 5, inclusive, and on segment 10, and an additional medio-dorsal one on segment 12. The spines on these tubercles are more or less branched, and some are truncate at the tip and bear bristles; those

on the dorsum are rusty yellow, tipped with black, with a few wholly black in the center of each bunch. The other bunched spines are black with the blunt ends white, and the spinules arising from them dusky. Stomata pale, narrowly oval. Venter yellowish along the middle. The head light brown. Thoracic legs brown; pro-legs lighter brown inclining to venetian red. Length nearly two inches.

It feeds on Oak, though it has been found on Peach and Apple. Gregarious, and enormous feeders.

NOCTUIDÆ.—(Owlet Moths.)

This family is more uniform in the different groups than the preceding. The head is distinct, not sunken into thorax, as in Bombycidæ; palpi stout, projecting in front of the head, but not more than the length of the head; antennæ filiform, slightly ciliate, or in the males of some species slightly pectinate. Body robust; thorax with more or less prominent shoulder tufts, usually distinct dorsal tufts, and prominent transverse tufts on the prothorax; abdomen with a line of dorsal tufts in some genera, and the males with more or less prominent anal tufts. The fore-wings are small, narrow, when at rest lie like a flat roof over the back; hind-wings broader, when at rest are folded so as to be covered by the fore-wings. The common name, Owlet Moths, is given them because they fly at night, though if molested they will fly a short distance in the day time. They are attracted by a light at night, and form a majority of the moths that are thus drawn to lamps in houses.

The larvæ are cylindrical, tapering somewhat from the middle toward each extremity, are striped and barred in various ways, and all but Catocala and a few allied genera have sixteen legs. The Catocala have fourteen legs and loop up the body when they walk, in a manner similar to the Geometrids. The chrysalides are sometimes in earthen cocoons under ground, at other times leaves or other substances are fastened together by silk above the surface, while in other species the chrysalides are naked under grass or something for shelter, or are formed in the stock of the plant within which the caterpillar has lived.

As a class, the caterpillars of the Owlet Moths are injurious to vegetation, though some of them living upon useless weeds need not be considered in the study of economic entomology. Among those that are seriously injurious are the various species of cut-worms, stalk-borers, etc. The beautiful moths of the genus Catocala find a large place in collectors' cabinets, while the injury their larvæ may do to trees is but little thought of.

PSEUDOTHYATYRA CYMATOPHOROIDES, Gue.

The larva of this species is unknown to me, nor can I find that it has been described. The general description of the larvæ of the genus is given thus by Gueneé: Caterpillars smooth, moniliform (that is the transverse sutures between the segments, are deep), holding in repose the anal pair of feet away from the plane of the body, their last segment elevated as in the *Notodontæ*. Live upon rosaceous plants.

APATELA OCCIDENTALIS, Grote.

The larva of this species is of a bluish gray color and sparsely covered with whitish hairs more numerous on the sides and near the upper surface, a wide slate colored dorsal stripe, in the middle of which, extending from the second to the fifth segments, is a pale orange line; on the dorsal stripe on each segment from the fifth to the eleventh is a nearly round, black velvety patch, in which are set four bright spots, one in front and one behind orange, and one on each side greenish with a metallic lustre; on each side of the dorsal stripe is a cream colored line; below this on the side another of a similar color, both growing somewhat indistinct anteriorly and posteriorly; a short black curved line extends across the cream colored lines commencing at the velvety patches; the sides are more or less covered with spots of a dull ochre color, some of which form a broken line close to the under surface; also covered with whitish more thickly on the sides; on the top of the twelfth segment is a small black hump; the terminal segment is flattened and blackish; underside dull greenish; feet black. Head black, rather long, bilobed, somewhat flattened in front, sparsely covered with whitish hairs and a few yellow dots on the sides.

Found on Mountain Ash in the latter part of June, the cocoons form about the second week in July and the moths issue the first part of August. The second brood has been found during the first part of September on Plum, Cherry and Apple, the chrysalis forming in the latter part of the same month and the moth appearing toward the first of the next June.

APATELA LEPUSCULINA, Gue. The Cottonwood Dagger.

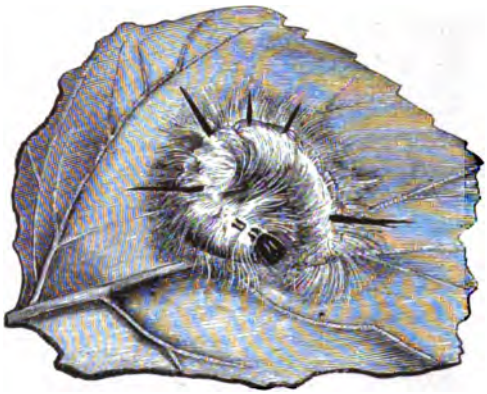

FIG. 42.—Apatela lepulculina.

When young this larva is very light, almost white with a distinct black dorsal line, short black tufts and sparsely covered with white hairs; when full-grown it is of a greenish yellow color thickly covered with long soft bright yellow hairs, which do not proceed from tubercles, but grow immediately from the body and turn from the middle of the back, curling round the sides; there are two little black spots on the top of both the first and second segments with a pale yellow line between, and from the top of 4, 6, 7, 8, and 11 there proceeds a straight black brush; it remains curled round upon the leaf when at rest. First brood found upon the leaves of the Cottonwood (*Populus monilefera*) in June, the second brood in July and September. It frequently defoliates the tree; when about to transform it seeks some sheltered place in a chink of the tree or under the cap of a fence in which to form a chrysalis, which is dark shiny brown and encased in a pale yellow cocoon formed of silk intermingled with the hairs of the caterpillar.

These caterpillars vary considerably, some having but three tufts, some having a sixth on the ninth segment, others having some black hairs.

APATELA AMERICANA, Harr. The American Maple Moth.

The larva of this species is one of the largest of the group, and when full grown measures from 1¾ to 2 inches in length. It is of a greenish-black color, covered with long soft yellow hairs. On the top of each segment is an oval greenish-yellow spot, situated transversely, and a transverse yellow depressed line in the middle. On each side of each segment are about four raised black dots; body sparsely covered with long black bristles, which are spear-shaped at the tip, and proceed from the skin or from warts. On top of the fourth segment there are two long, slender, erect tufts of black hairs, and one on the eleventh. The divisions between the segments are very deep. On each side of the yellow spot on the first, fourth to ninth, and eleventh and twelfth segments there are two hairs longer than the rest. Stomata black; underside, feet and tip of body black. Head, chestnut-brown; bilobed. Feeds on Maple, Elm, Linden, Chestnut, Cottonwood and Poplar.

This, like the previous species, when at rest, is curled up on a leaf, and seeks a sheltered place to undergo its transformations, the moth appearing in July.

APATELA HAMAMELIS, Guen.

This larva varies in color from pale yellow to yellowish-red, with a few short scattered whitish hairs on the sides; a row of connected, triangular, dark brown patches and spots of pale brown on the sides. Head flattish in front and similar to the body in color. When at rest it remains curled around in the center of the leaf. It is about one inch in length. Found in August on Chestnut trees, making a cocoon of bits of wood and grains of earth about the last of August, the moth appearing the following June.

APATELA OBLINITA, Guen. The Smeared Dagger.

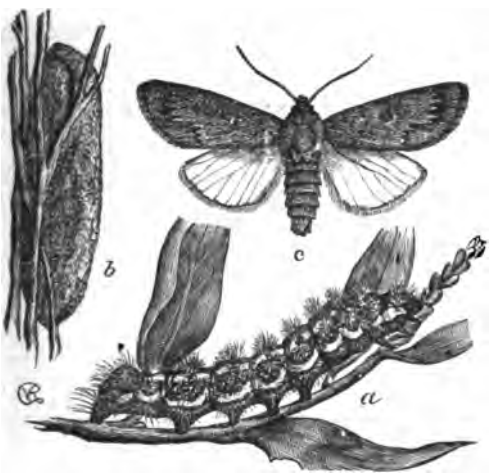

FIG. 43.—Acronycta oblinita.

The larva of this species is black. In the middle of each segment is a crimson band extending from the stomata on one side to the same on the other; on each band are placed six reddish warts, from each of which proceeds a tuft of yellowish bristles, the dorsal two being farthest apart. On each side of the dorsum is a yellow line interrupted by the crimson bands; also interrupted at the incisures in such a manner as to make the black dorsum almost diamond shaped on each joint. The stigmatal line is broad, wavy and bright yellow, and on which is situated, on the middle of each segment, a yellow wart emitting a tuft of bristles. Between the yellow lines are pale yellow spots of different sizes. Stomata oblong-oval and pale. Thoracic legs black; pro-legs tipped with black. Head chestnut-brown. Found in June, August and September on Smartweed, Apple, Grape and Willow.

APATELA SUPERANS, Guen.

The larva of this species is the "Green Chestnut-backed Caterpillar," and is about one inch in length. It has a thick body; is of a green color, with a broad chestnut-brown dorsal stripe and a yellow sub-dorsal line. In the middle of the stripe, on the top of the second, third and fourth segments, there are two little shining black tubercles (two on each), and on each of the others, excepting the last, where there are none, there are four, arranged in a transverse curved line; each tubercle emits one or more black hairs; on the lower sides there are a few long whitish hairs.

This rare caterpiller is found on Plum leaves in June, feeding singly.

APATELA RUBRICOMA, Guen.

The larva of this species measures 1.25 inches in length. It is of a yellowish-green color, and has a blackish dorsal stripe, on each side of which is a yellow line; a thick tuft of hair, about half an inch long, arises from the posterior part on the top of segments 3, 4, 5, 6, 7 and 11; these are white in the younger specimens and blackish in the older. The remainder of the body is more or less covered with tusts of white hairs about half an inch in length. Head black. In a curled position when at rest. Feeds on Hackberry leaves. Found in June and in September; the moth from the June caterpillar appears in August.

AGROTIS C-NIGRUM, Linn. The Black-C Rustic.

This larva is known as the "Spotted Cut-worm," and when full-grown is 1¼ inches in length, of a uniform dark greasy gray color, lighter underneath; with two rows of elongated black patches along the back, which occupy the posterior two-thirds of each segment, and are more distinct on the posterior part of the body than the anterior. Previous to the worm casting its skin the last time, there is a fine yellow line just outside these patches. In the lighter specimens the ground color on the back, between these spots, is variegated a little so as to show a faint diamond-shaped spot on the middle of each segment, the two darkest points being at the posterior and anterior parts of the segments. Sometimes the ground color has a slightly brownish tinge, which under the pocket lens is seen to be caused by minute brown spots; in these specimens the black elongate patches are nearly obsolete on the anterior part of the body. They are found in March and April feeding on Grass, Vegetables, Pear tree and Maple (*Acer dasycarpum*).

AGROTIS SUBGOTHICA, Harr. The Gothic Dart.

FIG. 44.—Agrotis subgothica. Moth.

This larva, known as the "Dingy Cut-worm," is one inch in length, of a dingy white color, with a pale buff dorsal line, edged on each side with an obscure dark line, and three inconspicuous broader lines on each side; stiff short hairs arise from piliferous spots. Head dark, finely sprinkled with white. Found in June in gardens cutting off plants indiscriminately; the chrysalides are formed in July, and the moths issue in September.

AGROTIS TRICOSA, Lint. The Perplexing Dart.

But little is known of the larva of this species, but as the moth is very closely related to both the *subgothica* and *herilis*, it is quite probable that the larva also resembles the larvæ of those species.

AGROTIS HERILIS, Grote. The Master Dart.

This larva is 1.25 inches in length; is of a dirty white or ash-gray color, inclining in some instances to carneous; dorsal line whitish, edged on each side with dark; three lateral dark broader stripes, the lower one the broadest, separated by two paler ones; quite often an indistinct glaucus white stripe under the lower broad dark one; piliferous spots good sized, either black or brown, from each of which arises a short stiff hair; a few hairs on other parts of the body. Head shiny black, or in some individuals finely speckled with white, especially at the sides, with the usual inverted Y mark. Underside dull white; legs marked with smoky brown. Found in fields and gardens in the Spring.

AGROTIS TESSELLATA, Harr.

This larva is thick and cylindrical, grayish in color, sometimes slightly tinged with yellowish; about an inch and a quarter long; a white dorsal line, with a dark one each side of it; on each side three dark stripes, separated by two pale ones, the lower one being the broadest, sometimes a glaucus white stripe below the lower dark one, below this and the underside dull white. Head and neck shining black, inverted Y mark white; on each side of the neck a dull white stripe; legs and pro-legs mottled with brown.

The moths appear about the first of July, and the eggs are soon after laid on the ground at the roots of grass, weeds or other vegetation upon which the young larvæ are to feed. When the weather begins to grow colder they descend several inches into the ground, where they remain torpid during the Winter, and come forth the first warm days of Spring.

AGROTIS SCANDENS, Riley. The Climbing Rustic.

This larva is the Climbing Cut-worm. When full grown it measures 1.40 inches in length; is a very light yellowish gray color covered with different sized greenish patches; a distinct dorsal line, and a less distinct sub-dorsal and stigmatal line; below the stigmatal, one less distinct; the upper piliferous spots are black; those on the sides lighter; stomata black, bristles fine and small; head tawny, with two black spots in front and two eye spots each side. Found in April depredating on Apple trees and Grape vines. They have a habit of climbing the trees during the night, at which time they do their feeding; they go into the ground to pupate toward the last of May, and in nine days the moths appear.

AGROTIS MESSORIA, Harr. The Reaping Rustic.

FIG. 45. Agrotis messoria. Moth and larva.

This larva is the Dark Sided Cut-worm. It is about 1.10 inches in length; of a dingy ash-gray color, darker on the sides, with a dark, dingy dorsal line; on each segment there are eight small black, shining, raised spots, from each of which proceeds a short hair, or bristle; stomata black, with one of the black spots placed close to the anterior side of them on each segment; the posterior extremity has a greenish tinge; under side and legs somewhat lighter than the upper. Head similar in color to the body, and shining; thick on the upper side, thinner below.

This larva possesses the climbing habit of the Climbing Rustic, and may be found in the ground, among Cabbages, Potato hills, in Corn fields and Flower gardens.

AGROTIS YPSILON, Ratt. The Lance Rustic.

FIG. 46.—Agrotis ypsilon. Moth.

The larva of this species is the Greasy Cut-worm, or Black Cut-worm, and measures from 1.50 to 1.60 inches in length. It varies in color, from a dark greasy gray to a dull leaden brown; a faint dirty yellowish white dorsal line, and a sub-dorsal line more distinct; on the side two indistinct pale lines; on each segment there are eight shiny-black piliferous spots, four on each side; one small one is situated above the sub-dorsal line on the anterior part of the segment, another larger one just below it a little back of the middle of the segment, one is placed just above the stigmatal line, and another below it in a similar position to those above; under side a dull lead color; pro-legs greenish, thoracic legs light brown. Head light brown, darker above, and a dark brown spot on each side; inverted ∧ mark light brown.

This worm is one of the most pernicious cut-worms of the group; when in confinement it will eat, with equal relish, vegetables, Apple and Grape leaves; it has been found in gardens, cutting Tomato plants, Cypress vines, Tobacco and Corn. It is found in May, and changes to a chrysalis in June; the moths appearing a month later.

AGROTIS SAUCIA, Hub. The Unarmed Rustic.

This larva is the Variegated Cut-worm, and is hatched from a pink-colored egg, with ribs radiating from a common center. These eggs are laid, in batches, on a twig or a leaf. The young larva is a minute yellowish thread-like worm, with the dark piliferous spots quite distinct. Before the first molt, they have the looping habit found in the Geometers, or Span-worms. When full grown, it is two inches long; varies in color from light to dark gray, and finely

mottled with light brown and very dark brown, or black, with dark velvety, longitudinal marks on the sides, near the sub-dorsal and stigmatal regions, each one about half the width of the segment; the 11th segment is slightly raised, and contains a black or dark brown mark in the shape of a triangle; a longitudinal row of yellow points on the back, one on each segment just back of the middle; a yellowish stripe below the stomata; piliferous spots not prominent, and similar in color to the body, a very short hair proceeds from each. Under side, legs and pro-legs gray with greenish tinge and speckled. Head light gray, speckled.

This is one of the most voracious of the Cut-worms, and may be found at any time during their season hidden in the ground near some plant, and often coiled up in a young cabbage head, where it has made a passage like a true borer; they feed almost indiscriminately on any plant in their reach, and, appearing as they do in May, are very destructive to all early vegetables. There are probably two broods, as it requires but 35 days to go through all of their transformations, and the moths appear in June; probably another brood later.

AGROTIS CLANDESTINA, Harr. The Clandestine Owlet Moth.

The larva is the W-marked Cut-worm, named by Prof. Riley on account of the markings on its back which resemble the letter W. It has the habit of climbing trees noted in the Climbing Rustic; it measures, when full-grown, 1.15 inches, and is of an ash-gray color, with a yellowish tinge on the back and sometimes greenish on the thorax and upper sides; finely sprinkled with black and brown spots; a fine dorsal line of a lighter color, with darker shadings on each side of it at the sutures of the segments; a sub-dorsal line of a light sulphur-yellow color; a dark wavy stigmatal line, below which are flesh-colored markings; on all but the thoracic segments there is a row of black velvety marks on each side of the dorsum, which, looking from the end to the head, have the form of a W; underside and pro-legs greenish-gray; thoracic legs brownish-black. Head black, white at the sides, with the inverted V-mark white.

AGROTIS LUBRICANS, Grote.

To the casual observer, this larva is grass-green, with a white stripe on each side; it is about 1.25 inches in length; by the use of a pocket lens, it is found to be marked with white and black; a dorsal line of greenish-white, a very fine black sub-dorsal line; below the stomata a broad line of creamy-white, below which, on each segment, it is slightly cloudy; piliferous spots very small, black, each emitting a short hair.

Probably two-brooded; found in June and August in gardens.

AGROTIS CUPIDA, Grote.

The larva of this species is of a greenish color, and may be found at night depredating upon Grape-vines. It crawls along the vines until it reaches a bud, when it stops and devours it; com-

mencing its depredations as soon as the buds begin to start. An account of it from Erie county, Ohio, shows an immense amount of injury done.

The moth may be found in July and August.

AGROTIS ANNEXA, Fr.

This larva is of a pale gray or slightly greenish color, with the vascular and sub-dorsal regions of a reddish-gray, the last sending upon the middle of each ring three oblique dashes in the form of cheveron; the stigmatal area is enclosed between two similar lines, and upon the upper of these lines the stomata are placed, which are brown. Head reddish; all the feet are concolorous.

Abbot represents this caterpillar as living upon the Leguminose plants.

Fabricius says it lives at the roots of herbs, as do other species of Agrotis.

MAMESTRA DISTINCTA.

When full-grown, this larva is 1.25 inches long, of a green color and marked with greenish-white; a very faint dorsal line, bordered each side with a darker shade of green, sub-dorsal line distinct. stigmatal line faint; body irregularly mottled with small spots of the same greenish-white color. Head a little smaller than the other segments and of a nearly uniform green color.

Found on Grape-vines in June, pupating the last of June, and the moths appearing the next March.

The chrysalis is subterranean, the anal end tipped with four bristles, two rather stout, the other two about half as long and more slender.

MAMESTRA ADJUNCTA, Guen.

This larva, as described by Mr. L. W. Goodell, of Amherst, Mass., differs from that of Mr. Lintner, by being brown instead of green. Mr. Goodell's description is as follows:

"Body smooth, thick and uniform to the 11th segment, from which it tapers abruptly to the end. Cinnamon-brown; a large sub-dorsal, velvety dark-brown shade on the 4th, 5th and 11th rings, and on each of the remaining rings, except the three first and last one, is a dorsal curved line, and two small roundish spots of the same color; two larger square dark brown dorsal spots, edged with yellowish.

MAMESTRA SUBJUNCTA, G. and R. The Subjoined Mamestra.

The larva of this species is the Speckled Cut-worm, and is about 1.60 inches in length, of a flesh-gray color and inclining to a rust color; in the middle of each segment, finely sprinkled with very minute black and white specks; an interrupted white dorsal line and a similar sub-dorsal line, these being distinct on the posterior part and indistinct on the anterior part of each segment; a stripe on the side of the body lighter than the general color; on the top of each segment, situated anteriorly, are two distinct spots; on the

second segment there are three longitudinal white lines, and its anterior edge is white; legs and tip of the body greenish. Head light shining brown with two outwardly-diverging darker marks. Found in gardens feeding on vegetables, especially Cabbage. Before changing into chrysalides they become an almost uniform pale-dirty yellow color, with the markings almost entirely obliterated.

MAMESTRA RENIGERA, Steph. Figure 8 Minor Moth.

FIG. 47.—Mamestra Renigena. Moth and larva.

The larva is the small white-bristly Cut-worm, about .75 of an inch long, of a dusky-yellowish color, which is caused by the very minute white specks with which it is sprinkled, tapering each way from the four middle segments; a broad dorsal stripe lighter than the body, with a row of elliptical spots in the centre of it; on the side there is a dark-brown line, below this a lighter one, very narrow, then a dark drab or yellowish-gray one, below the stigmata one of a light gray color; stiff yellowish bristles arise from the usual pili-ferous spots; underside dark, yellowish-gray; thoracic legs brown; pro-legs dark at the base. Head dark.

Found in August in flower gardens.

HADENA DEVASTATRIX, Brace. The Devastating Dart.

This larva is the Glassy Cut-worm, and measures 1.75 inches in length; of a translucent, grassy-green color with a tinge of blue, lighter posteriorly than anteriorly, and usually a very deep bluish dorsal line; four distinct piliferous spots on each segment, each slightly ringed, from each of which proceeds a hair, and on the anterior edge of the segment two simple spots without hairs. Head bright venetian red, mandibles black; cervical shield very distinct, hard, polished and of a dark-brown color. Found underground near Cabbage plants, in May.

HADENA ARCTICA, Boisd. The Amputating Brocade Moth.

The larva is the Yellow-headed Cut-worm, and is of a pale-smoky color, with a bright tawny yellow head. It is about 1½ inches in length; cervical shield distinct, same color as the head; anal plate brown; piliferous spots emitting short hairs. Head with a few scattering hairs.

CALPE CANADENSIS, Bethune.

The larva of this species is about 1¼ inches long, of a bluish-white color; a dorsal row of transverse black dashes, a yellow stigmatal stripe, with another row of transverse black dashes just above it, some of them uniting with those of the dorsal row, thus forming black bands; venter, black or deep green; thoracic legs brown, abdominal legs black. Head shining yellow, marked with

two black spots on the upper part of the face, three black spots near the jaws and a black spot on each side of the head. Found on Meadow rue (*Thalictrum*) from April to August.

PSEUDO GLOSSA LUBRICALIS, Geyer.

Larva $\frac{7}{8}$ of an inch long; of a dull purplish-brown color; two rows of alternate black and yellow tubercles on the anterior part of the segment, the tip of each bent backward at nearly a right angle, the yellow ones on the posterior part bent forward; some of the black tubercles are ringed with yellow at the base; a few piliferous spots on each side of the body, from which arises a short bristle. Usually found on the ground beneath pieces of wood, in June and July. Feeds on grass, and spins a cocoon.

CHYTOLITA MORBIDALIS, Guen.

The larva measures about $\frac{7}{8}$ of an inch in length; it is broadly convex on the upper side, and somewhat flattened on the under; it is of a reddish color, mottled with yellow; the first segment being darker than the others, and covered with black dots; a dorsal line of a dark color; on each side of the second and third segments are seven piliferous spots, arranged. first, four transversely, then two obliquely, below these one by itself; on each segment, from four to nine, are eight similar spots, the first two being arranged obliquely, then three in a curved transverse row, and below these three in the form of a triangle. Head small, dark grayish. Feeds on grass and Hazel. Found in May and July. Spins a cocoon.

LAPHYGMA FRUGIPERDA, Guen. The Fall Army-worm.

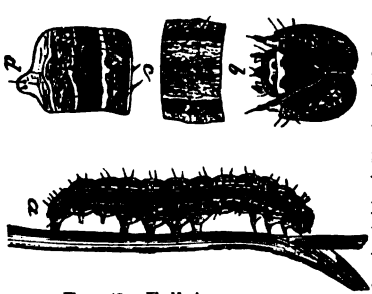

FIG. 48.—Fall Army-worm.

This larva is variable in color, generally black when young, but when full-grown varying from pale brown to dirty green, sometimes with pink and yellow admixed, or mottled with crimson and yellow and brown markings; the dorsum is brownish, with a narrow dorsal line bordered each side with a darker shade; on each side of the body is a dark line that is bordered above with yellow; below the stomata is a buff or flesh-colored line bordered above with a wavy yellow line. Appears in the Fall and feeds on both Wheat and Corn.

PRODENIA COMMELINÆ, Guen. The Spider Owlet Moth.

The larva of this species is the Wheat Cut-worm, and is black; the dorsal line is somewhat brownish, and a more dingy shade each side of it; the sub-dorsal region is very dark, and at its junction with the dorsum there is a pale buff line; on the sides and near the middle it is finely sprinkled with a light color; the piliferous spots are black, those on the back usually with white at the base;

outwardly, stigmatal line light-buff. Head deep polished brown, with the inverted V mark white; cervical shield the same color as the back; caudal plate with black spots, between which is a longitudinal cream-colored dash. Feeds on Wheat.

PRODENIA LINEATELLA.

Length 1.35 inches; dorsal line pinkish lilac; the dorsal space contains, first, a series of dark brownish-drab spots, the broadest part occupying the center of each joint, the spots connecting with each other at the union of the segments. These spots extend from the dorsal line two-thirds of the distance to the sub-dorsal; on the sub-dorsal rests a series of either triangular or semi-oval velvety black spots, one to each joint on each side of the body; these extend half-way to the dorsal line, thus encroaching a little upon the drab spots; sub-dorsal line the same color as the dorsal, with a narrow bright yellow semi-elliptical spot at the base of each black spot. All of the dorsal space not filled with these three series of spots is gray, irregularly striped with fine white substigmatal lines, and a line in the middle of the sub-dorsal space the same color as the dorsal; the space above this intermediate line is about the same color as the line, but irregularly striped with fine black; below the same line the space is black, irregularly striped with whitish, not quite white; below sub-stigmatal line, carneous-gray spotted with white. Head and cervical shield black. Found in garden Aug. 20. Pupated Aug. 25. Moth appeared Sept. 11. Fed on Salsify, Peach and Raspberry leaves.

NEPHELODES VIOLANS, Guen. The Violet Nephelodes.

This is a robust larva, 1.75 inches in length; on the sides are four broad dark-brown stripes, alternating with three narrow grayish yellow ones; the lower stripes are somewhat mottled with a lighter color; head yellowish-gray, marked a little with brown; cervical shield dark, almost black.

This resembles the Cut-worms in the habit it has of feeding at night. It is generally found hidden under dead grass, but feeds on Grass, Corn and Knot-grass (*Polygonum aviculare*). Found in April and May, pupates in June, and the moths issue the following September.

LEUCANIA PSEUDARGYRIA.

Length about one inch; general color light reddish-brown, sprinkled over with dark brown; a fine dorsal line of the ground color, without the dark-brown specks.

In the dorsal space there is an aggregating together of the dark brown specks so as to form a faint V on each joint when seen from behind, though at the same time the specks form two very faintly indicated longitudinal lines each side of the dorsal; sub-dorsal space sprinkled with the brown, but lighter than the dorsal; below the stigmata there are very few of the brown specks; no distinct sub-dorsal and sub-stigmatal lines; pro-legs with a patch of brown at

the base. Head about the same color as the body, mottled with brown; cervical shield dark brown, small; anal plate brown; piliferous spots small brown. Found March 8, 1878. Pupated March 21 on top of dirt beneath some grass without cocoon. Moth appeared April 18. Fed on grass.

PLUSIA BRASSICÆ, Riley.

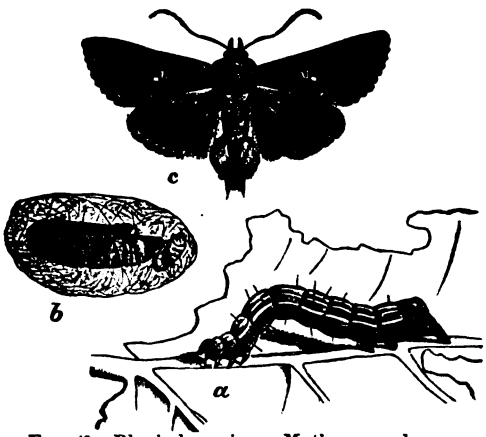

FIG. 49.—Plusia brassicæ. Moth, pupa, larva.

The characters of this larva are briefly given as follows, a fuller description being given on page 35 of my former report.

The caterpillar is of a greenish color, with three yellow longitudinal lines, one along the back, the others on the sides; between these are several tubercular black spots, each bearing a pale hair; the tail is black; when full grown it is about an inch and a half long. The eggs are deposited in clusters, usually on the underside of the leaf. The caterpillars soon hatch and are gregarious in their habits.

They feed on the leaves of Cabbage, Turnips, Radish, Mustard and other cruciferous plants.

The following paper, by Mr. D. W. Coquillett, is deemed of sufficient importance to warrant its introduction here without any modification. It is true that by so doing several descriptions will be duplicated, but it is impossible for me to separate and omit these parts without doing injustice to the author. Moreover the descriptions by different parties vary more or less, each having something in it that the other has not.

The reader will observe that the author has adopted some of the new, or revised genera, not used in the other part of the report. I have felt it due to the author to leave these as he has given them.

CYRUS THOMAS.

LIST OF LARVÆ.

A list of the Larvæ described in the following pages, showing the sections in which they are to be found:

1. Acrobasis nebulo, IV, 3.
2. Acronycta oblinita, VIII, 10.
3. Actias luna, X, 9.
4. Adipsophanes micellus, XI, 5.
5. Ægeria tipuliformis, II, 4.
6. Agrotis c-nigrum, XIII, 5.
7. Alypia octomaculata, IX, 3.
8. Anisopterix pometaria, I, 5.
9. Arctia arge, VIII, 8.
   phalerata, VIII, 12.
   isabella, VIII, 7.
10. Argynnis bellona, XIII, 1.
    egleis, VI, 16.
    idalia, VI, 7.
    myrina, VI, 2.
11. Arsilonche henrici, VIII, 13.
12. Asopia farinalis, IV, 4.
13. Botis penitalis, III, 1.
14. Collosamia promethea, X, 3.
15. Calpe canadensis, IX, 1.
16. Carpocapsa pomonella, II, 2.
17. Catocola grynea, XIII, 2.
    linella, XII, 4.
18. Ceramica picta, XIV, 1.
19. Cherocampa tersa, V, 8.
    Chytoleta morbidalis, XIII, 5.
20. Citheronia regalis, VI, 5.
21. Clisiocampa americana, III, 14.
22. Cœlodasys unicornis, I, 1.
23. Coleophora malivorella, IV, 2.

24. Cossus centerensis, II, 5.
25. Crambodes talidiformis, XI, 4.
26. Ctenucha virginica, VIII, 9.
27. Danais archippus, VI, 3.
28. Dapsilia rutilana, III, 9.
29. Darapsa versicolor, V, 2.
30. Daremma undulosa, V, 4.
31. Datana ministra, VII, 6.
32. Deilephila chamœnerii, V, 5.
lineata, V, 6.
33. Drasteria erechtea, I, .
34. Dryocampa senatoria, V, 1.
35. Erasia texana, VI, 15.
36. Euchates collaris, VIII, 6.
37. Eucronia mira, VI, 12.
38. Eudamus proteus, XIII, 6.
tityrus, III, 8.
39. Eudryas grata, IX, 6.
unio, IX, 4.
40. Exartema fascianatum, III. 3.
41. Gastropacha americana, VII, 5.
42. Gelechia flavocostella, III, 4.
43. Gortyna nitela, II, 3.
44. Grapta comma, VI, 8.
interrogationis, VI, 14.
45. Halesidota caryæ, VIII, 2.
tesselaris, VIII, 1.
46. Heliothis armigera, II, 1.
47. Hibernia tiliaria, I, 8.
48. Hypena scabra, I, 3.
evanidilis, I, 2.
49. Hyphantria textor, III, 13.
50. Hyperchiria io, VIII, 5.
51. Hypropepia fucosa, XIII, 4.
52. Leucania harveyi, XIV, 2.
phragmitidicola, XIV, 3.
53. Leucarctia acræa, VIII, 11.
54. Loxotænia rosaceana, III, 7.
55. Limenitis dissipus, VI, 4.
56. Macrosila cingulata, V, 1.
carolina, V, 3.
57. Melitæa baroni, VI, 11.
58. Nematocampa filimentaria, 1, 7.
59. Neonympha eurptris, XIII, 3.
60. Notodonta unicornis, XII, 1.
61. Orgyia leucostigma, VII, 3.
62. Pamphila delaware, X, 1.
peckius, X, 11, and XII, 6.
phylacus, X, 6.
palatka, III, 10.
maculata, X, 5.
63. Papilio asterias, IX, 6.
philenor, VI, 13.
turnus, IX, 7.

64. Paragyia clintonia, VII, 1.
parallela, VII, 2.
65. Penthina nimbatana, III, 5.
66. Perophora melshimerii, IV, 1.
67. Philampelis achemon, XII, 3.
pandorus, X, 2.
68. Phoxtopteris nubeculana, III, 6.
69. Pyrameis cardui and huntera, III, 1 and 2.
70. Phyciodes harrisii, VI, 6.
mycteris, VI, 18.
tharos, VI, 7.
71. Pieris protodice, X, 10.
rapæ, X, 12.
72. Platycerura furcella, VIII, 3.
73. Plusia precationis, I, 6.
74. Pseudoglossa lubricalis, XII, 2.
75. Psychomorpha epimenis, IX, 2.
76. Pyrophila pyramidalis, VII, 3.
77. Samia cecropia, X, 7.
columbia, X, 8.
78. Satyrus nephele, XII, 2.
79. Scepsis fulvicollis, VIII, 14.
80. Sesia diffinis, V, 10.
tenuis, V, 9.
81. Smerinthus modestus, V, 7.
82. Spilosoma virginica, VIII, 4.
83. Telea polyphemus, X, 4.
84. Telesilla cinerola, XI, 1.
85. Tolpe velleda, VII, 4.
86. Tortrix fervidana, III, 12.
87. Vanessa antiopa, VI, 10.
milberti, VI, 17.
88. Xyleutes robiniæ, II, 6.

LARVAE OF LEPIDOPTERA.

By D. W. Coquillett.

SECTION II.

The larvæ belonging to this section are commonly called *caterpillars*; their bodies are divided by impressed rings into about 12 parts, called segments. These segments are numbered from the head backward; that is, the segment back of the head is numbered 1, the one back of this number 2, and so on. A few authors call the head the first segment, and the segment back of this number 2; but this is, in our estimation, very inconsistent, and in the following pages the segment back of the head is always numbered 1, and the other segments are numbered to correspond with this.

Caterpillars are provided with from 10 to 16 legs; those which have the latter number have 6 legs under the fore part of the body, 8 under the middle, and 2 under the last segment. In those which have a less number of legs than 16, the legs missing are usually those under the middle of the body; in some which have 14 legs, however, the legs under the last segment are either entirely wanting, or their place is supplied by a pair of short tubes. The legs beneath the fore part of the body are called *thoracic*; those beneath the middle of the body, *abdominal;* and those beneath the last segment, the *anal.*

In the descriptions certain terms are used which will need explaining. The *dorsal line* is in the middle of the back; the *sub-dorsal line* is midway between the dorsal line and the *spiracles*, or breathing pores, which are 18 in number, and are situated one on each side of the first segment, and of the segments from 4 to 11 inclusive; the *stigmatal line* includes the spiracles. The *dorsal space* extends from the dorsal line half-way to the spiracles; the *sub-dorsal space* extends from the spiracles half-way to the dorsal line; the *stigmatal space* is between the spiracles and the base of the legs, but this term is seldom used; the under part of the body is the *venter.* There is sometimes a polished spot on top of the first segment; this is called the *cervical shield*; a similar spot on top of the last segment is called the *anal plate. Piliferous spots* are small raised spots or dots, usually of a brownish color, situated on various parts of the body.

After each description is usually given the time of the year at which the caterpillar appears, its food-plant, and its manner of transformation; that is, whether it suspends itself, spins a cocoon, or enters the earth before assuming the chrysalis form. The author's name is appended to each description, although the description is not always in his own words, as it was thought best to change some of the terms used in order to secure a greater uniformity in the descriptions, but the author's meaning has in all cases been preserved.

ANALYTICAL KEY

TO THE GROUPS OF SECTION II.

Body provided with 10, 12 or 14 legs.....Group I.
Body provided with 16 legs.
  Larva lives in the fruit, stems or roots of plants .....Group II.
  Larva lives in or under a web, in a nest of leaves, or in the fold or roll of a leaf .....Group III.
  Larva lives in cases or tubes, in honeycombs, old hay, flour, etc.....Group IV.
  Larva lives exposed upon the leaves of plants.
    Body with one or more horns or spines.
      With only one horn or spine .....Group V.
      With more than one horn or spine.....Group VI.
    Body clothed with hair, at least on the sides.
      Back nearly naked, or with large bunches of hair, Group VII.
      Body uniformly covered with hair.....Group VIII.
    Body naked, or nearly so.
      Body marked with one or more transverse bands..Group IX.
      Body destitute of transverse bands.
        Ground color of body green or bluish.
          Body unlined, or marked with 4 lines or less...Group X.
          Body marked with more than 4 lines.....Group XI.
        Ground color of body never green nor bluish.
          Body unlined, or marked with three lines or less, Group XII.
          Body marked with 4 or 5 lines .....Group XIII.
          Body marked with more than 5 lines ..... Group XIV.

GROUP I.

The caterpillars belonging to this group are provided with from 10 to 14 legs; their bodies are either naked or thinly covered with piliferous spots, from each of which issues 1 or 2 hairs.

SYNOPSIS OF GROUP I.

Body provided with 14 legs.
  Anal legs wanting..... 1
  Anal legs present.
    Body with black piliferous spots..... 2
    Body destitute of these spots..... 3
Body provided with 12 legs.
  Ground color never green,..... 4
  Ground color green.
    Head brown..... 5
    Head green..... 6
Body provided with only 10 legs.
  With pair of horns on top of segments 5 and 6..... 7
  Without these horns; body yellow, with ten black lines..... 8

1—*Cœlodasys unicornis.*—First 3 segments pale green, marked with a double dorsal brown stripe; remaining segments reddish brown; on top of segment 4 is a high projection, divided at the tip into two points, each bearing a short divergent hair; segment 8 slightly humped; between this hump and the projection on segment 4 is an elongated white spot, constricted at the middle, and marked with pale red lines; segment 11 very slightly humped; between this hump and that on segment 8 is a V-shaped white spot opening posteriorly; last segment destitute of legs; head green, marked with red, and with two black stripes on the face. Feeds on Hazel, Apple, Plum and Checkerberry. July to September. Spins a cocoon. (J. A. Lintner.)

2—*Hypena evanidalis.*—Body green, sometimes tinged with pink; a dark colored dorsal line; a white sub-dorsal and stigmatal line, the latter sometimes wanting; on each side of each segment are from 5 to 7 black piliferous spots, from each of which issues 1 or 2 short hairs; venter green, covered with black piliferous spots; head green, dotted with black; length 1 inch. Feeds on the Hop. August to September. Enters the earth. (D. W. Coquillett.)

3—*Hypena scabra.*—Body green; a dark dorsal line faintly edged with white; a white sub-dorsal and stigmatal line; venter pale green, unmarked; head smooth, green; length 1 inch. Feeds on Clover. May to September. Spins a cocoon. (D. W. Coquillett.)

4—*Drasteria erechtea.*—Body marked with black or dark colored, white and pink lines; some of these lines form dark colored stripes, which are situated as follows: one on the dorsal space, a stigmatal stripe, and one just above the legs; there is sometimes a dark colored stripe midway between the stigmatal stripe and the one on the dorsal space; the three last mentioned stripes also extend upon the head; there is usually a dark colored dorsal stripe, most distinct on the middle of the body; sometimes the body is tinged with brown, except on the first and last segment; venter ashen gray, marked with darker lines, and with a black line in the middle; head whitish, marked with 6 dark colored stripes; length 1⅛ inches. Feeds on Grass. May to October. Spins a cocoon. (D. W. Coquillett.)

5—*Anisopteryx pometaria.*—Body whitish green; a wide brown dorsal and stigmatal stripe; between these stripes are 3 white lines, the middle line the faintest; venter pale flesh color; the anterior

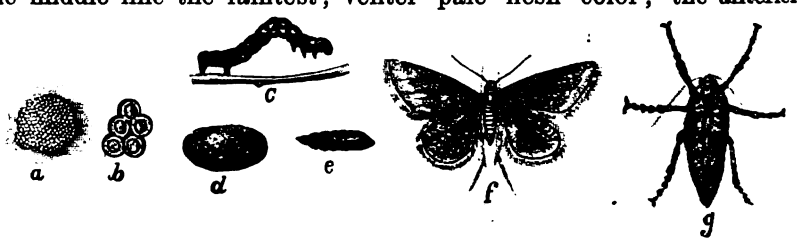

FIG. 50.—Anisopteryx pometaria. Moths, pupa, larva and eggs.

pair of abdominal legs are smaller than the posterior pair; head brown; length ⅞ inch. Feeds on Apple, Cherry, Elm and Peach. May to June. Enters the earth. (G. H. French.)

6—*Plusia precationis.*—Body green, a dark dorsal stripe faintly edged with white; a sub-dorsal and stigmatal white stripe, the latter the most distinct; an indistinct whitish line on the dorsal space; sub-dorsal space sometimes tinged with black; piliferous spots green, sometimes tipped with black, as with a black basal annulation; sometimes these spots are entirely black, or whitish; venter green; head smooth, green, sometimes encircled with black, or with a black dash on each side. Length, 1½ inches. Feeds on Plantain, Burdock and Dandelion; found throughout the year. Spins a cocoon. (D. W. Coquillett.)

7—*Nematocampa filamentaria.*—Body gray or dull blackish, marked with blackish dashes; on top of the segments 5 and 6 is a pair of long fleshy horns, which curve in opposite directions; these horns

are brownish black, tipped with white, and sometimes have a gray basal annulation; on top of segment 4 is a pair of short thick tubercles, and back of these a pair of black prickles; on top of segment 11 is a pair of short thick prickles; the sides of segment 10 are sometimes whitish; head grayish brown, or blackish. Length, $\frac{7}{8}$ inch. Feeds on Hazel, Hickory, Strawberry and Currant. May to June. Spins a cocoon. (D. W. Coquillett.)

8—*Hibernia tiliaria.*—Body yellow, marked with about ten black lines, which sometimes impart to the ground color a bluish cast; the lowest line is wavy, and unites with the one above it on the middle or anterior part of each segment; sometimes the body is marked with dusky blotches; venter yellowish white, marked with a white or yellow line in the middle, and sometimes with an indistinct whitish line on each side of this; head smooth, yellowish brown. Length, 1 inch. Feeds upon the leaves of nearly every kind of shrub and tree. May to June. Enters the earth. (D. W. Coquillet.)

GROUP II.

The caterpillars belonging to this group have 16 legs, and they live in the fruit, stems, branches or roots of plants, shrubs or trees.

SYNOPSIS OF GROUP II.

Larva lives in fruit or grain.
  Lives in ears of corn or bolls of cotton.....1
  Lives in apples, crab-apples, etc.....2
Larva lives in the stems or roots of plants.
  Body reddish brown, lined with white.....3
  Body flesh-colored, whitish or pale greenish.
    Larva lives in cultivated currant bushes.....4
    Larva lives in aspen.....5
    Larva lives in locust, oak, crab-apple, etc.....6

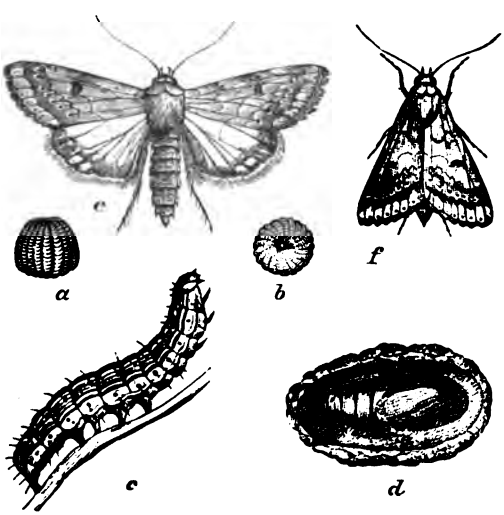

FIG. 51.—Heliothis armigera. Moth, pupa, larva and eggs.

1—*Heliothis armigera.*—Body pale ashen green, or pale green; dorsal region sometimes tinged with pink; sometimes a whitish dorsal line; a dark-colored dorsal stripe, which is sometimes edged with yellow; a dark-colored stripe on upper part of sub-dorsal space; there is sometimes a yellowish line above the spiracles and a whitish line below them; sometimes a row of black piliferous dots on the dorsal space; above and back of each spiracle is a black piliferous spot; cervical shield grayish brown, or green, marked with blackish; venter dark green, sometimes tinged with pink; or brownish, marked with three whitish lines; head shining yellowish brown. Length, 1½ inches. Feeds on Corn; living beneath the husks. August to November. Enters the earth. (D. W. Coquillett.)

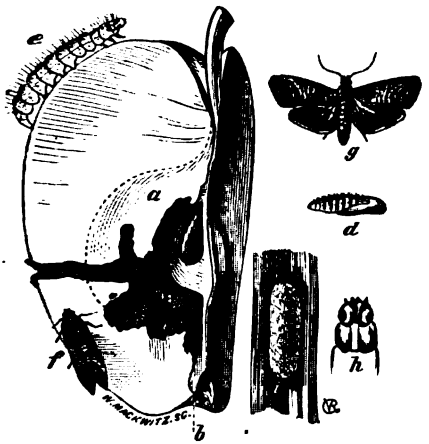

FIG. 52.—Carpocapsa pomonella. Moth chrysalis and work.

2—*Carpocapsa pomonella.*—Body yellowish, sometimes tinged with pink on the back; on each side of each segment are about four dark piliferous spots; cervical shield grayish; head dark reddish brown, or grayish. Length ½ inch. Lives in Apples and Siberian Crab-apples. May to July. Spins a cocoon. (D. W. Coquillett.)

FIG. 53—Gortina nitela. Moth and larva.

3—*Gortyna nitela.*—Body reddish-brown; a whitish dorsal and sub-dorsal stripe, the latter wanting on the segments from 4, or 3, to 7, inclusive; the under part of these segments is reddish-brown; under part of the remaining segments greenish-white; cervical shield and head yellowish-brown—the latter sometimes has a black dash on each side; length, 1¼ inches. Lives in the stems of Corn, Potato, Tomato, young Currant bushes, and nearly every species of weed. May to September. Assumes the chrysalis form in its burrow. (D. W. Coquillett.)

4—*Ægeria tipuliformis.*—Body whitish, with a tinge of flesh color; piliferous spots concolorous with the body; cervical shield yellowish; head pale brown; length, ⅝ inch. Lives in the stems of cultivated Currant bushes. July to May. Spins a cocoon in its burrow. (D. W. Coquillett.)

5—*Cossus centerensis.*—Body pale flesh; a dark dorsal line; on top of segments 2 and 3 is a dark spot; on each side of each segment above the spiracles are 3 brown piliferous spots arranged in the form of a triangle; spiracles reddish; cervical shield blackish-brown, edged with dull yellow; head dark reddish-brown, slightly roughened; a few hairs on the face; jaws black, with 3 strong teeth; length, 2 inches. Lives in the trunks of *Populus tremuloides.* Found throughout the year. Assumes the chrysalis form in its burrow. (J. Bailey.)

6—*Xyleutes robiniæ.*—Body pale greenish-white, with a tinge of pink or yellow; sometimes a reddish-pink band on the anterior part of each segment except the first 3 or 4 and the last one; a dark colored dorsal line; segments 2 and 3 with a brown spot on the top; on each side of each segment from 4 to 11, inclusive, are 3 piliferous spots above the spiracle, arranged in the form of a triangle; the piliferous spots are brown or pink; venter greenish-white; cervical shield dark or yellowish-brown; head dark brown; the middle of the face sometimes light colored; length, 2½ inches.

Lives in the trunks and larger limbs of Oak, Locust and Crab-apple. Found throughout the year. Spins a cocoon in its burrow. (D. W. Coquillett).

GROUP III.

The caterpillars belonging to this group have 16 legs, and they live in a silken web, in a nest of 2 or more leaves fastened together with silken threads, or in a folded or rolled leaf.

SYNOPSIS OF GROUP III.

Larva lives under a silken web ..... 2 and 1
Larva lives in a folded or rolled leaf.
  Body reddish-brown 3
  Body green or yellowish.
    Second segment black 4
    Second segment green.
      Head black 5
      Head reddish or yellowish-brown.
        Lives in a folded leaf 6
        Lives in a rolled leaf 7
Larva lives in a web or between leaves webbed together.
  Larvæ live singly.
    Head black, marked with 2 yellow spots 8
    Head never black.
      Body flesh-colored 9
      Body greenish 10
  Larvæ live in communities.
    Larvæ live on weeds 11
    Larvæ live on trees.
      Body nearly naked 12
      Body uniformly covered with hairs 13
      Body nearly naked, sides covered with hairs 14

1 and 2—*Pyrameis cardui*, and *Pyrameis huntera*.—Body dark purplish-brown, sometimes dotted with yellow; a yellow dorsal stripe, divided in the middle by a dark line; a pale yellow stigmatal line; a short distance above this is an indistinct yellow line; on each segment is a transverse row of about 7 black or whitish branching spines, some of which have a yellow basal annulation; the 2 or 3 spines on top of segments 5, 7 and 9 are sometimes yellow. Head shining black, thinly covered with short hairs; length 1½ inches. Lives under a web, on Thistle and Burdock. June to September. Suspends itself by the hind feet. (D. W. Coquillett.)

3—*Exartema fascianatum?*.—Body reddish-brown; piliferous spots concolorous with the body; cervical shield and head shining black; length ⅜ inch. Feeds on Yellow Dock, living in a rolled leaf. June to July. (D. W. Coquillett.)

4—*Gelechia flavocostella*.—Segments 1 and 2 black; rest of the body very pale yellowish; a pale brownish dorsal line; a pale brownish sub-dorsal and stigmatal line, on the upper part of which is a row of black piliferous spots, 2 to each segment on the sub-dorsal line, and 1 to each segment on the stigmatal line; thoracic legs black; venter greenish-yellow; cervical shield and head shining black; length ½ inch. Feeds on Wild Sunflower (*Helianthus grosse-serratus*), living in a rolled leaf. May to June. (D. W. Coquillett.)

5—*Penthina nimbatana*.—Body deep green; a dark dorsal line; piliferous spots green; head and cervical shield shining black; length ⅜ inch. Feeds on Wild Rose (*Rosa blanda*), living in a rolled leaf. May to June. (D. W. Coquillett.)

6—*Phoxtopteris nubeculana*.—Body greenish-yellow; cervical shield pale yellow, with a black spot on each outer hind corner; anal-plate pale yellow, with 2 indistinct blackish spots, which sometimes coalesce and form a crescent; head reddish-yellow; length nearly ½ inch. Lives in a folded leaf on Apple. June to April. (C. V. Riley.)

7—*Loxotænia rosaceana*.—Body green; a dark dorsal line; piliferous spots green; cervical shield deep green, surrounded on the sides and behind by a black line, or shining black, tinged with green, next the head; head yellowish-brown, the region of the jaws black, or entirely black; length nearly 1 inch. Feeds on Apple, Cherry, Crabapple and Horse-chestnut, living in a rolled leaf. May to June. (D. W. Coquillett.)

8—*Eudamus tityrus*.—Body pale greenish-yellow, marked with fine black rings, one of which, situated on the anterior part of each segment, is wider than the others; sides of segment 1 bright red; cervical shield shining black; venter and abdominal legs pale green; thoracic legs reddish; head very large, black, with 2 round yellow spots on the lower part of the face; length 1¼ inches. Feeds on Locust (*Robinia pseudacacia*), living in a case of 2 or more leaves fastened together with silken threads. June to August. (D. W. Coquillett.)

9—*Dapsilia rutilana*.—Body flesh-colored; cervical shield and head deep reddish-yellow; length about ¼ inch. Lives in a nest of leaves on the Juniper. August to March. (C. V. Riley.)

10—*Pamphila palatka*.—Body yellowish-green, thickly covered with minute dark hair-tipped tubercles; cervical shield, a transverse black

line connecting 2 black dots; anal-plate semi-circular, projecting: spiracles black; venter bluish; head brownish, the upper part of the face white, and marked with 3 black stripes; length 2 inches. Feeds on Saur-grass (*Cladium effusum*), living in a tube, formed by fastening some of the strongly keeled leaves together. (A. W. Chapman.)

11—*Bôtis penitalis.*—Body pale yellow; piliferous spots black; cervical shield brown, or white dotted with black; venter whitish; head whitish, dotted and marked with black; length $\frac{3}{4}$ inch. Feeds on Indian-hemp (*Apocynum cinnabinum*), living in a nest of leaves fastened together with silken threads. June to October. (D. W. Coquillett.)

12—*Tortrix fervidana.*—Body blackish-brown or slaty-yellow; piliferous spots shining black; venter pale brown or yellowish; cervical shield and head shining black; length $\frac{5}{8}$ inch. Feeds on Oak, Cherry and Choke-cherry, living in a nest of leaves fastened together with silken threads. June to July. (D. W. Coquillett.)

14—*Hyphantria textor.*—Body bluish-gray, the dorsal space sometimes nearly black; a white dorsal and stigmatal line, a white or black sub-dorsal line; hair whitish, reddish, or mouse-colored, in spreading clusters from yellowish-brown warts, or the 2 warts on top of each segment sometimes black; venter black; head black, or reddish-brown, marked with black, especially in the region of the jaws; length $1\frac{1}{4}$ inches. Lives in a web, on Cherry, Oak, Hickory, etc. June to October. (D. W. Coquillett.)

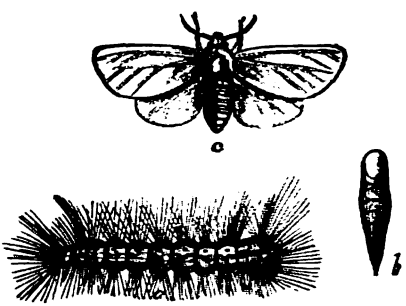

FIG. 54.—Hyphantria textor. Moth and pupa.

14—*Clisiocampa americana.*—A white dorsal line, then a yellow line dotted with black, then a black stripe marked with blue and yellow dots, then a wavy yellow line dotted with black, then a blue

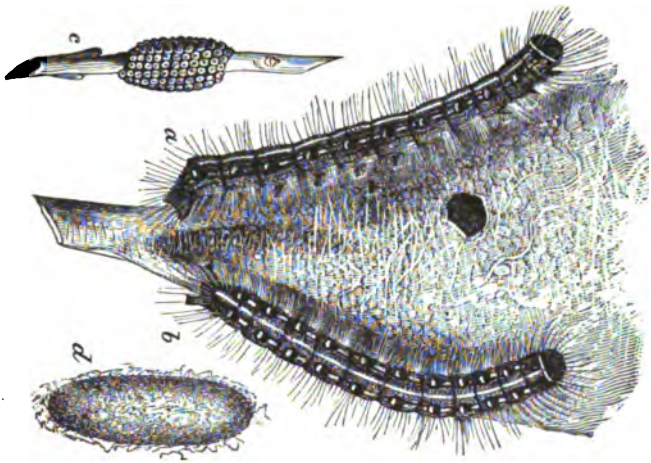

FIG. 55.—Clisiocampa americana. Pupa, larva and eggs.

stigmatal stripe dotted with yellow, then a broken whitish line; venter blackish; head black, thinly covered with hair; hair yellowish or whitish, thickest on the sides of the body; length 1¾ inches. Lives in a web, on Plum, Apple and Cherry. May to July. Spins a cocoon. (D. W. Coquillett.)

GROUP IV.

The caterpillars belonging to this group have 16 legs, and they live in portable or stationery leafen or silken cases or tubes; many of them feed upon the leaves of trees, but a few feed upon honeycombs, old hay, flour, etc.

SYNOPSIS OF GROUP IV.

Body as if cut off obliquely behind 1
Body rounded behind.
  Head black 2
  Head reddish or yellowish-brown.
    Larva lives on trees 3
    Larva lives in old hay, flour, etc 4

1—*Perophora melsheimerii.*—Body reddish brown, thickly covered with minute white or yellowish warts; a faint dorsal and sub-dorsal yellowish line; the posterior end of the body appears to be obliquely cut off, at which place there is a kind of grayish plate; cervical shield brownish black, with a white dorsal line; head roughened, brownish-black; length 1¼ inches. Feeds on Oak, living in a portable leafen case. August to May. Assumes the chrysalis form in its case. (D. W. Coquillett.)

2—*Coleophora malivorella.*—Body pale yellowish, sometimes with a faint roseate hue; segments 1 and 3 with a rough blackish stigmatal spot; segment 2 with a similar spot, and with 2 narrow black dorsal spots and a sub-dorsal yellowish spot; head large, rough, black; last 2 segments covered with brown granulations and furnished with rather long hairs; length less than ¼ inch. Lives in a pistol-shaped case on the leaves, buds and young fruit of the Apple. September to June. (C. V. Riley.)

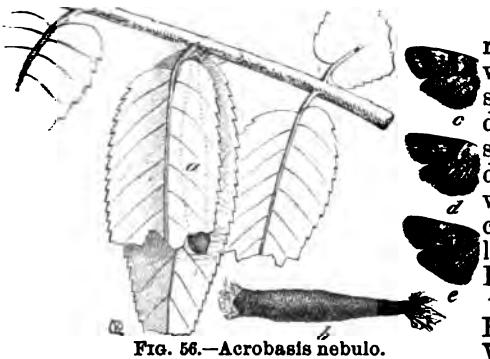

FIG. 56.—Acrobasis nebulo.

3—*Acrobasis nebulo.*—Body reddish brown, sometimes tinged with green: piliferous spots scarcely visible; venter pale reddish, brown or greenish; cervical shield brownish, usually bordered behind with black; head wider than segment, nearly circular, roughened, reddish-brown; length nearly one-half inch. Lives in a curved, black silken tube on Apple and Plum. Found throughout the year. (D. W. Coquillett.)

4.—*Asopia farinalis.*—Body pale whitish, tinged with dull leaden; piliferous spots not visible; cervical shield pale yellowish; head pale yellow or yellowish-brown; length nearly three-fourths of an inch. Lives in a silken tube in old flour and old clover hay, sometimes burrowing into the clover stalks. July to May. (D. W. Coquillett.)

GROUP V.

The caterpillars belonging to this group are provided with 16 legs, and their bodies are naked or covered with small prickles; on top of the eleventh segment is a horn or spine.

SYNOPSIS OF GROUP V.

Body brownish..... 1
Body pinkish..... 2
Body green or blue.
  Body nearly smooth.
    With seven oblique whitish lines on the sides..
      Head light blue, unmarked..... 3
      Head green, bordered with white.
        Anal horn tinged with lilac..... 4
        Anal horn not tinged with lilac..... 2
    Without these lines.
      Head pinkish brown..... 5
      Head green or blue..... 6

Body covered with small prickles.
With seven oblique whitish lines on the sides..... 7
Without these lines.
With a sub-dorsal white line..... 8
Without this line.
With seven black stigmatal points..... 9
Without these points.....10

1—*Macrosila cingulata.*—Body blackish brown; a crimson dorsal line which contains a few diamond shaped blackish-brown patches on the anterior part of the body; a crimson sub-dorsal line and a wavy yellowish stigmatal line, which sends off just above the spiracles short curved dashes; anal horn short, brownish, the sides white; head yellowish with two brownish dashes on each side.

Feeds on the Sweet-potato. Enters the earth. (Abbott & Smith.)

2—*Darapsa versicolor.*—Body green or pinkish brown; sometimes a dark dorsal line; a sub-dorsal line extends from the mouth to the upper part of the eyes, and thence backward to the rear of segment 4; a similar line runs obliquely from lower part of segment 4 under and including the stigmatal point, upward and backward to the rear of segment 5; this is followed by 5 other and parallel lines, each beginning and ending one segment farther back, except the last, which extends across three segments up to the base of the anal horn; there are faint indications of other lines at the lower part of segments 10 and 11; anal horn black in front and at the end, and red at the sides, or greenish in front and behind and white at the sides; spiracles red; head somewhat triangular, yellowish or light green; length 3 inches. Feeds on the Swamp Button-bush (*Cephalanthus occidentalis*). June to August. Spins a cocoon. (G. D. Hulst.)

3—*Macrosila carolina.*—Body green, wrinkled transversely, dotted with white, the dots situated on the wrinkles; the wrinkles on the posterior two-thirds of the body are sometimes dark colored; sometimes an interrupted white line below the spiracles not extending upon the first 3 segments; on either side of each segment, from 4 to 10 inclusive, is an oblique white stripe, which is sometimes edged above with blackish, the stripe on segment 10 extending on segment 11 to the base of the anal horn; on each side of segment 11 is sometimes a short white stripe; anal horn black, sometimes blue on each side at the base; spiracles black encircled with dark brown, those on segment 1 encircled with whitish; venter green, dotted with white; head smooth, light blue; length 4 inches. Feeds on the Tomato and Ground Cherry (*Physalis pubescens*). July to September. Enters the earth. (D. W. Coquillett.)

4—*Daremma undulosa.*—Body light green, rather slender, smooth; on each side of the body are 7 oblique yellowish white lines; spiracles pink or lilac; anal horn tinged with lilac; head green, bordered with greenish white; length 3 inches. Feeds on Lilac and Privet (*Ligustrum*). June to August. Enters the earth. (W. V. Andrews.)

5—*Deilephila chamœnerii.*—Body deep green, tinged with brown; a pale yellow dorsal line; on the segments from 3 to 12 inclusive is a sub-dorsal row of pale yellow spots; stigmatal region thickly covered with minute yellow piliferous spots; segment 12 dull pinkish; anal horn tuberculate, red, tipped with black; spiracles yellow, shaded around with blackish; venter pale pinkish green, covered with minute yellow piliferous dots, placed chiefly along the sides; head dull pinkish brown, with a black stripe across the face; length 2½ inches. Feeds on Willow herb (*Epilobium angustifolium*) and Grape. June to August. Enters the earth. (W. E. Saunders.)

6—*Deilephila lineata.*—Body green; a sub-dorsal row of oval spots composed of two curved black lines, which do not quite meet at their ends; below the upper line is a pinkish spot, and above the

FIG. 57.—Deilephila lineata.

lower line is a yellow spot; sometimes the upper black lines of these spots are joined together, forming a wavy sub-dorsal black stripe; these spots are situated on the anterior part of the segments, and are usually joined together by a dark or light colored line; anal horn brownish; a stigmatal row of wavy brown spots or elongate black patches; below this is an interrupted black line; head smooth, dirty green; length 3 inches. Feeds on Purslane, Grape, Apple, Melon, Turnip, Buckwheat and Evening Primrose (*Oenothera biennis*). June to September. Enters the earth. (D. W. Coquillett.)

7—*Smerinthus modestus.*—Body green, roughened with small yellowish or white granulations, forming on segments 3 and 4 a kind of crest; a yellowish or white sub-dorsal line; on each side of the body are 7 oblique yellowish lines, the seventh running from the fourth pro-leg to the anal horn; anal horn yellow or white, sometimes very small; spiracles edged with red; head triangular, green with heavy granulations; length 1⅝ inches. Feeds on Poplar. July to September. Enters the earth. (W. V. Andrews.)

8—*Chœrocampa tersa.*—Body light green, the back dotted with brown points; on segment 4 is a sub-dorsal crimson spot surrounded by a blue ring, this by a black one and this by a white one; there are 6 other spots similar to this, situated on a sub-dorsal white line, which begins on segment 2 and extends to the crimson anal horn; spiracles yellow, dotted above and below with black points. Spins a cocoon. (Abbott and Smith.)

9—*Sesia tenuis.*—Body green, with 8 black stigmatal points; anterior edge of segment 1 a little raised, studded with a double series

of deep yellow tuberculate points; anal horn black, yellow at the sides at the base, studded with blunt points; segment 1 tuberculate, the surface of the rest of the body transversely wrinkled; venter deep reddish purple, shading to blackish over the feet; head green; length 1⅜ inches. Feeds on Snowberry (*Symphoricarpus*). Spins a cocoon. (A. R. Grote.)

10—*Sesia diffinis*.—Body covered with minute whitish prickles, light blue on the back, the sides green; on top of segment, is a transverse gold-colored ridge; anal horn black, the base yellow; spiracles black with a blue annulation; head smooth, light blue; venter brownish; length 1⅝ inches. Feeds on the Tartarian Honeysuckle and Feverwort (*Triostium perfoliatum*). May to July. Spins a cocoon. (D. W. Coquillett.)

GROUP VI.

The caterpillars belonging to this group are provided with 16 legs, and are usually covered with spines; some are perfectly smooth while others are covered with small prickles; all of them have more than one horn or spine.

SYNOPSIS OF GROUP VI.

The 2 horns on segment 2 longer than any of the others.
- Head black.
  - Body black or brownish, with eight yellow lines 1
  - Body bluish purple, with two yellow lines 2
- Head never black.
  - Body marked with transverse bands 3
  - Body destitute of transverse bands 4

The 2 horns on segment 2 no longer than some of the others.
- Body marked with transverse bands or rings.
  - Body green, ringed with pale blue 5
  - Body black, ringed with yellow.
    - Last segment nearly black 6
    - Last segment yellow 7
- Body destitute of transverse bands or rings.
  - Body yellowish-white 8
  - Body black.
    - Dotted with white.
      - With a stigmatal yellowish stripe 9
      - Without this stripe.

With a dorsal row of red spots.....10
Without these spots.....11
Not dotted with white.
Lower spines black.....12
Lower spines not black.
Venter black.....13
Venter brown.....11
Body brownish or purplish.
Head reddish brown.
Head covered with prickles.....14
Head smooth.....15
Head black.
Body without a stigmatal line.
With 2 dorsal lines.....16
Without these lines.....13
Body with a stigmatal line.
With a dorsal stripe.....17
Without this stripe.
Body bluish purple.....2
Body blackish brown.....18

1—*Dryocampa senatoria.*—Body black or greenish brown; on each side of the body are 4 yellow lines; sometimes below the lowest of these lines is a row of yellow spots; on top of segment 2 are two long black horns; on each segment is a transverse row of about 8 black prickles; sometime the lowest prickle in each row has a yellow basal annulation; cervical shield shining black or yellow; anal plate flat, black, the sides beset with prickles; sides of anal legs flattened; venter black, sometimes with a yellow line in the middle; head polished black; length 2¼ inches. Feeds on Oak, usually living in large communities. August to October. Enters the earth. (D. W. Coquillett.)

2—*Argynnis myrina.*—Body pale bluish-purple, covered with black dots and blotches; a stigmatal yellow line; sub-dorsal space sometimes marked with yellow; on each segment is a transverse row of about 6 spines which are beset with black bristles; these spines are either entirely black or the basal ⅔ is yellow and the outer ⅓ black; on top of segment 2 are two long horns, beset with black bristles, and are black with the base yellow; sometimes these horns are no longer than the spines; venter purplish or brownish; head polished black; length 1¼ inches. Feeds on Violets. August to September. Suspends itself by the feet. (D. W. Coquillett.)

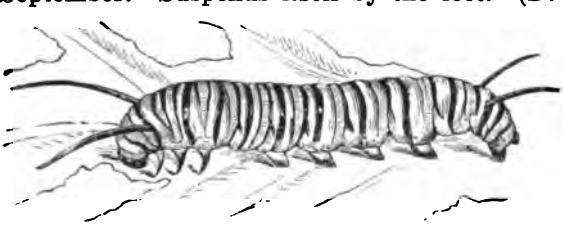

FIG. 58—Danais archippus. Larva.

3—*Danais archippus.*—Body marked with transverse rings of black, white and yellow; on top of segment 2 is a pair of long black movable horns; on top of segment 11 is a pair of shorter black horns; head yellow, surrounded with black, and marked on the face with

an inverted V and U-shaped mark, the former being the nearest to the jaws. Length, 1¾ inches. Feeds on various kinds of Milkweeds (*Asclepias* and *Acerates*). June to September. Suspends itself by the hind feet. (D. W. Coquillett.)

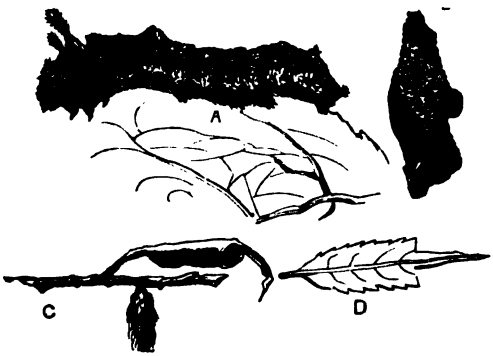

FIG. 59.—Liminits disippus. Larva, pupa and work.

4—*Limenitis ursula* and *disippus*.—Segments 1 and 2 pale flesh or ashen pink; segments 3, 4, 5 and 6 and the sides of segment 7 brownish, or greenish; top of segments 7 and 9 and nearly the whole of segment 8 pale pinkish flesh, or whitish; sides of segment 9 and nearly the whole of the last three segments brownish, or greenish; a pale flesh or whitish stigmatal stripe. On top of segment 2 are two barbed, club-shaped, brown horns; head very large; the face grooved vertically, the surface covered with tubercles, the top notched, the upper angles produced into a blunt tubercle. Length, 1½ inches. Feeds on the Willow and Poplar. Found throughout the year. Suspends itself by the hind feet. (The caterpillars of these two butterflies are indistinguishable. D. W. Coquillett.)

5—*Citheronia regalis*.—Body green, transversely banded with pale blue; on each side of segment 3 is a large bluish black spot; on each segment is a transverse row of six or eight spines, beset by black points; two of these spines on segment 1, and four on each of the segments 2 and 3 are larger than the others, and a deep yellow, tipped with black; the others are entirely black; head deep yellow. Length, 5 inches. Feeds on Walnut, Sumac, Butternut, Persimmon and Hickory. Enters the earth. (T. W. Harris.)

6—*Phyciodes harrisii*.—Body ringed with black and yellow, or reddish brown; on the middle of each segment is a transverse black band, on which is a row of black spines, thickly beset with black hairs, and sometimes having a blue basal annulation; in front of this band is a black ring, and behind it are two black rings; black dorsal stripe; last two segments nearly black; sometimes a yellowish stigmatal ridge; head black, covered with short hairs; the lobe somewhat pointed. Length 1 inch. Feeds on Aster and *Diplopappus umbellatus*. Suspends itself by the hind feet. (W. H. Edwards.)

7—*Argynnis idalia*.—Body black, marked with transverse yellow lines; a yellow, brownish or white dorsal stripe, in the middle of which is sometimes an interrupted black line; a dark yellow stigmatal stripe; last segment entirely yellow; on each segment is a transverse row of spines, which are beset with black bristles; the two spines on the top of each segment are silver white, tipped with black; the other spines are smaller, yellowish, the base usually orange; head slightly hairy, the upper half reddish, the lower half black, or wholly light brown. Length 1¾ inches. Feeds on Violets. October to July. Suspends itself by the hind feet. (W. H. Edwards.)

8—*Grapta comma.*—Body yellowish white; a dorsal row of three-pronged green spots; on each segment is a transverse row of yellowish white branching spines, tipped with black; head grayish, the sides black, thinly covered with small prickles, and with two black branching spines on the top. Length, 1¼ inches. Feeds on the Hop. May to September. Suspends itself by the hind feet. (D. W. Coquillett.)

9—*Phyciodes tharos.*—Body black, dotted with white; a light yellow stigmatal stripe dotted with black. This stripe is sometimes nearly divided in the middle by a row of black dashes situated on the middle of each segment. On each segment is a transverse row of black branching spines; venter pale brownish, dotted with white; head black, the upper angles produced into a short thick tubercle. Length, 1¼ inches. Feeds on Aster. Found throughout the year. Suspends itself by the hind feet. (D. W. Coquillett.)

10—*Vanessa antiopa.*—Body black, covered with minute white dots; a dorsal black line, interrupted by a row of 7 or 8 velvety-red or pale yellow spots; on each segment is a transverse row of black branching spines; abdominal legs reddish-brown or yellowish; length 2 inches. Feeds on Poplar, Elm and Willow. May to September. Suspends itself by the hind feet. (D. W. Coquillett.)

11—*Melitæa baroni.*—Body black, sometimes dotted with whitish points; on each segment is a transverse row of 7 spines; the dorsal spine in each row is yellow, with black bristles, the lowest spine yellow, the remainder are black; venter brown; head black or dark brown, covered with black hairs; length 1 inch. July to August. Suspends itself by the hind feet. (W. H. Edwards.)

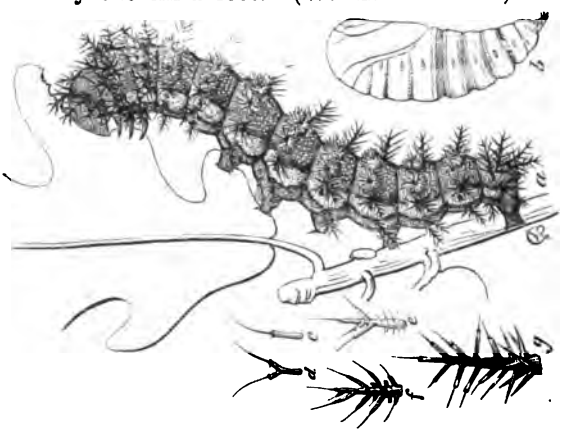

FIG. 60.—Eucronia maia. Pupa and larva.

12—*Eucronia maia.*—Body brownish or dull black; sometimes dotted with yellow and marked with a yellow stigmatal stripe; on each segment is a transverse row of black branching spines, which are sometimes dotted with yellow; sometimes, in place of the two rows of spines on the back, there are two rows of brown fascicled warts, except on the first and last segment; the top of segment 1 is sometimes polished reddish brown; head polished brown or reddish brown; length 2¼ inches. Feeds on Willow, Oak, Aster and Spiræa. July to September. Enters the earth. (D. W. Coquillett.)

FIG. 61. Papilio philenor. Larva.

13—*Papilio philenor*—Body black, with a tinge of purple or brown; on each side of segment 1 is a long brown horn; on each of the segments 2, 3 and 5 are two small dorsal dark yellow warts, and on each side of each of these segments is a brown tubercle; on top of segment 4 are two yellow warts, and on each side of this segment is a yellow wart; on top of each of the segments 6, 7, 8 and 9 are two yellow tubercles, and on each side of these segments is a curved brown spine; on top of the segments 10 and 11 are two curved brown spines, and on each side of these segments is a curved brown spine; on top of segment 12 are two brown tubercles; on each side of the segments 7, 8, 9 and 10 is an orange spot just before and above each spiracle; cervical shield black, marked with an orange transverse dash on the anterior part; venter black, with two tubercles on segment 5; head black; length 2 inches. Feeds on *Aristolchia silphi*, *A. serpentaria*, and *A. tomentosa*. July to September. Suspends itself by the hind feet and a transverse loop. (C. V. Riley.)

14—*Grapta interrogationis*.—Body dark brownish, mottled with yellow; sometimes a yellow line above the spiracles; on each segment is a transverse row of red or light colored spines, tipped with black, or entirely black; head reddish brown, thinly covered with small prickles, and with two branching spines on the top; length 1¾ inches. Feeds on the Hop and Elm. May to October. Suspends itself by the hind feet. (D. W. Coquillett.)

15—*Eresia texana*.—Body brown, speckled above with dull white; on each segment is a transverse row of about 7 spines; the lowest spines in each row are greenish-white; the other spines are brown; on the dorsal space is sometimes a whitish line, and just below it is an interrupted black stripe; a broad greenish-white stigmatal stripe, mottled with greenish and brown; head smooth, brown; length 3-5 inch. Feeds on *Actinomeris squarrosa*. September to October. Suspends itself by the hind feet. (W. H. Edwards.)

16—*Argynnis egleis*.—Body blackish-brown, or brown mottled with black, sometimes mottled with gray; two yellow or dark gray dorsal lines; on each segment is a transverse row of 6 spines; the lowest spines are yellow, the others black, or those on segments 2 and 3 yellow; sometimes the two lowest spines are yellow, tipped with black, and the others are dull white, tipped with black; head black, covered with short hairs; the top of the head is sometimes dull yellow; length 1 1-5 inches. Feeds on violets. August to May. Suspends inself by the hind feet. (W. H. Edwards.)

17—*Vanessa milberti*.—Body pale brown, minutely dotted with yellowish white; a dark brown dorsal line; a whitish stigmatal line, above which is a row of dark spots; on each segment is a transverse row of short blackish spines, which are beset with very small

bristles; head black, covered with small black and white tubercles; length 1¼ inches. Feeds on Nettle. Suspends itself by the hind feet. (T. W. Harris.)

18—*Phyciodes nycteis.*—Body blackish-brown, dotted with white; a dull green or pale, or reddish-yellow stigmatal stripe, dotted and spotted with yellowish; on this stripe are two yellow lines, these lines wanting when the stripe is yellow; on each segment is a transverse row of about 7 tapering black spines, which spring from shining black tubercles, except the lowest spine, which springs from a yellow or greenish tubercle; venter greenish-brown, dotted and spotted with yellowish; head shining black, thickly covered with minute prickles, from which arise black hairs; length 1 inch. Feeds on Aster and *Actinomeris squarrosa.* Suspends itself by the hind feet. (W. H. Edwards.)

GROUP VII.

The caterpillars belonging to this group have 16 legs; the sides of their bodies are thickly clothed with hair, and their backs are either naked or have large bunches or tussocks of hair.

SYNOPSIS OF GROUP VII.

With large bunches of hair on the back.
- Hair mouse-colored.....1
- Hair pale yellowish.....2
- Hair white.....3

Without these bunches of hair.
- Hair mouse-colored.
  - With 2 warts on top of each segment.....4
  - Without these warts.....5
- Hair whitish or yellowish.....6

1—*Parorgyia clintonis.*—Body dark gray; on top of the segments 4, 5, 6 and 7 is a wide tussock of mouse-colored hair, sprinkled with white; on each side of the first and last segment and on top of segment 11, is a pencil of long black hairs, knobbed at the outer ends; on top of segments 9 and 10 is a small reddish wart; the hair on the sides of the body is mouse-colored and quite long. Head shining black; length 1¼ inches. Feeds on Oak. May to July. Spins a cocoon. (D. W. Coquillett.)

2—*Parorgyia parallela.*—Body gray: a dorsal and stigmatal black line; sometimes a sub-dorsal blackish line; on top of segments 4, 5, 6 and 7 is a large tussock of black hairs, the tussock on segment 7 sometimes wanting; on each side of the first and last segment is a pencil of long black hairs; on top of segment 11 is a tussock of black hairs, the tussock appearing to be double; the hair on the sides of the body is yellowish, in spreading clusters; on top of segments 9 and 10 is a small pale yellow wart. Head shining black; length 1½ inches. Feeds on Oak, Crabapple, Horsechestnut and Plum. Found throughout the year. Spins a cocoon. (D. W. Coquillett).

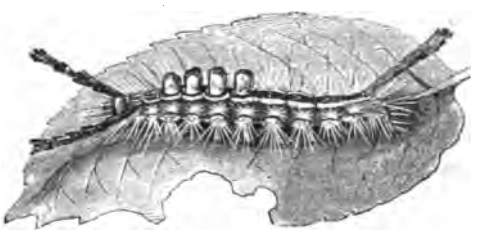

FIG. 62—Orgyia leucostigma. Larva.

3—*Orygia leucostigma.*—A black dorsal stripe, not extending upon the first 3 segments; next to this is a white or yellow line, then a greenish or pale blue stripe, on which is sometimes a black line; next to this stripe is a black stigmatal line, and below this is a yellow line; on top of the segments 4, 5, 6 and 7 is a wide tussock of white hair; on each side of the first segment, and on top of segment 11, is a pencil of long black hairs, which are knobbed at the outer end; on top of segments 9 and 10 is a small red wart; cervical shield red, venter yellowish white, tinged with blue. Head reddish-brown or dark red; length 1⅛ inches. Feeds on a variety of trees. May to September. Spins a cocoon. (D. W. Coquillett.)

4—*Tolpe velleda.*—Body bluish-gray, marked with numerous longitudinal lines; on top of segment 3 is a transverse black band, most distinct when the caterpillar is in motion; on top of each segment are two warts, those on segment 3, in front of the black band, are the largest; each of these warts gives forth a few black hairs; a stigmatal row of large warts, from each of which proceeds a cluster of light-gray hairs, interspersed with a few black ones. Length 2¾ inches. Feeds on Apple, Oak and Elm. June to August. Spins a cocoon. (J. A. Lintner.)

5—*Gastropacha americana.*—Body pale-bluish, the dorsal space sometimes darker than the sub-dorsal; on the back are about six yellow lines, on some of which are a few black dots; on each side of segment 1 are two warts, one above the other; a stigmatal row of warts; from each of these warts projects a thin cluster of mouse-colored hairs; on the back, between segments 2 and 3, and 3 and 4, is a transverse dark reddish-yellow line, which can be seen only when the caterpillar is in motion; on top of segment 11 is a thick blunt prominence; venter black, spotted with pink and yellow; head pinkish-blue, dotted and streaked with a darker color and thinly covered with short hair; length 2 inches. Feeds on Poplar and Apple. May to June. Spins a cocoon. (D. W. Coquillett.)

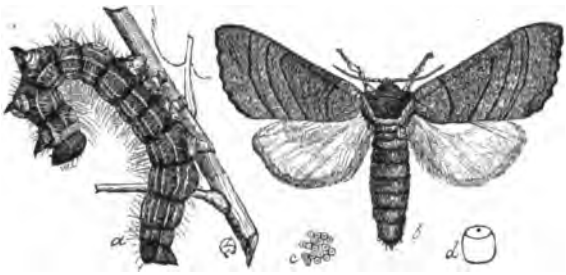

FIG. 63.—Datana ministra. Moth, larva and eggs.

6—*Datana ministra.*—Body black or reddish-brown; unmarked or marked on each side of the body with 5 yellow lines, 3 of which are above the spiracles and 2 below them; thinly scattered over the body are a few whitish hairs, which are thickest on the sides of the body; sometimes the cervical shield and outside of the abdominal legs are shining pale-yellow; venter black or reddish-brown with a yellow stripe in the middle; head shining black; length 2 inches. Feeds on Oak, Sumac, Apple, Hazel and Walnut. July to October. Enters the earth. (D. W. Coquillett.)

GROUP VIII.

The caterpillars belonging to this group have 16 legs; their bodies are uniformly covered with hair which usually issues from warts in clusters of 6 or more hairs.

SYNOPSIS OF GROUP VIII.

With long pencils of hairs.
- Body black or dark green; hair pale yellowish 1
- Body yellowish-white; hairs bright yellow 2
- Body mottled, dull red 3

Without these pencils.
- Body pale yellow or dark gray 4
- Body green or blue 5
- Body greenish-white.
  - With dorsal and stigmatal lines 4
  - Without these lines 6

Body black or brownish.
  Without lines 7
  With 3 lines (dorsal and sub-dorsal) 8
  With 4 lines, sub-dorsal or stigmatal.
    Head black, the top and sides reddish 9
    Head reddish 10
    Head black.
      Hair on back black, on sides reddish 11
      Hair whitish, reddish or black 10
      Hair mouse colored 11
  With only 1 line (dorsal) 12
Body striped with about 7 lines; head black 13
Body striped with about 11 lines; head yellowish 14

1—*Halesidota tessellaris.*—Body black or dark gray, with the sutures of the segments yellowish; hairs from warts pale yellowish; that on the back forming a crest, that on the sides in spreading clusters; on each side of segments 2 and 3 is a black and a white pencil of long hairs, the white pencils the lowest; there is sometimes an additional pencil of white hairs on each side of segment 2; on each side of segment 11 is a pencil of long black hairs; head shining black or reddish brown; length, 1⅜ inches. Feeds on Oak, Hazel and Buttonwood. July to October. Spins a cocoon. (D. W. Coquillett.)

2—*Halesidota caryæ.*—Body yellowish-white; a low white stigmatal ridge; hairs bright yellow; on top of each segment, from 4 to 11, inclusive, and on each side of segments 4 and 10, is a cluster of black hairs; on each side of segments 1, 2 and 12 are two pencils of long whitish hairs; on each side of segments 4 and 11 is a single cluster of long whitish hairs; head shining black; length, 1⅜ inches. Feeds on Willow, Hickory, Elm and Ash. August to October. Spins a cocoon. (D. W. Coquillett.)

3—*Platycerura furcilla.*—Body mottled dull red, marked on each side with a transverse irregular bright red band; a whitish dorsal line edged with gray; a gray line above the spiracles, on which, on each segment from 3 to 8, are four depressed black spots; a stigmatal red and white line; on each segment is a transverse row of tubercles, from each of which issues a cluster of red hair, which, on the anterior segments, inclines to yellow; on the segments 1, 2, 4 and 11 are two pencils of red hairs about ¼ inch long, darker at their tips and slightly feathered; spiracles encircled with brown; legs red; head red, marked with lighter red; length, 1⅝ inches. Feeds on Pine (*Pinus strobus*). July to September. Spins a cocoon. (J. A. Lintner.)

4—*Spilosoma virginica.*—Body pale yellow or dark gray, with a dark colored sub-dorsal stripe, and sometimes with a yellow stigmatal line, or greenish-white, with a white dorsal and sub-dorsal; hair in spreading clusters from warts, white, yellow, light reddish, or the base reddish-brown, with the tips black; venter pale yellow, blackish, or greenish-white; head black, yellowish-brown, or pale yellow; length, 1½ inches. Feeds on Cabbage, Beets, Peas, etc. June to November. Spins a cocoon. (D. W. Coquillett.)

FIG. 64.—Hyperchiria io. Larva.

5—*Hyperchiria io.*—Body light blue above, the stigmatal region deep green; just below the spiracles is a red line, and below this is a white one; these lines do not extend upon the first 3 segments; on each segment is a transverse row of 6 or 8 clusters of stiff green, poisonous spines, some of which are tipped with black; venter deep green, marked with 2 rows of red spots, which are dotted with white; head smooth, green; length, 3 inches. Feeds on Hazel, Oak, Elm, Sassafras, Locust and Corn. June to September. Spins a cocoon. (D. W. Coquillett.)

6—*Euchætes collaris.*—Body pale greenish-white; hair soft, in spreading clusters from warts, pearl-gray or mouse-colored; venter greenish-white; spiracles white, ringed with black; head pale yellowish-white; length, 1¼ inches. Feeds on Indian Hemp (*Apocynum cinnabinum*) and Spreading Dogbane (*Apocynum androsæmifolium*). June to October. Spins a cocoon. (D. W. Coquillett.)

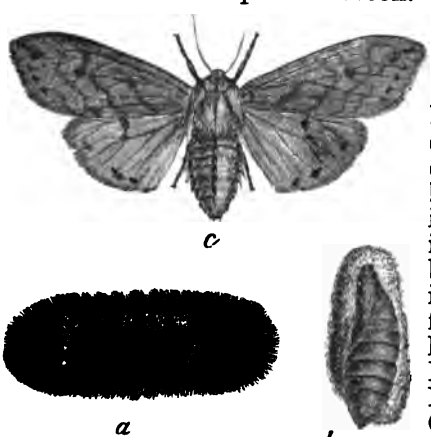

FIG. 65.—Arctia isabella. Moth, pupa and larva.

7—*Pyrrarctia isabella.*—Body black; hair appears to be cut off of equal length, in spreading clusters from black warts; the hair on the middle of the body is reddish-brown, or pale yellowish, and that on the ends of the body is black; spiracles yellowish; head smooth, black, with a few short hairs on the face; length, 1¾ inches. Feeds on Burdock, Plantain, etc. July to May. Spins a cocoon. (D. W. Coquillett.)

8—*Arctia arge.*—Body black, or purplish, marked with black; a pale pinkish dorsal and sub-dorsal line; a stigmatal row of pinkish spots; hair whitish or reddish, in thin spreading clusters from black or yellow warts; venter blackish or yellowish-white; abdominal legs yellow; head shining black, or the sides yellowish; the face black, marked with an inverted V-shaped white mark and a white dash near the jaws; length 1½ inches. Feeds on Evening Primrose (*Œnothera biennis*). September to May. Spins a cocoon. (D. W. Coquillett.)

9—*Ctenucha virginica.*—Body black, tinged with brown; a white sub-dorsal and stigmatal line, the former sometimes nearly obsolete; on top of the segments from 3 to 11, inclusive, is a cluster of black hairs, the hairs forming these clusters not spreading; next to these is a row of pale yellow or whitish spreading clusters, and below these the hair is black, in spreading clusters; the hair lowest down on each side of the body and that on each end of the body is sometimes mixed with whitish; head reddish on the top and sides, the face black; length, 1¼ inches. Feeds on Grass. September to May. Spins a cocoon. (D. W. Coquillett.)

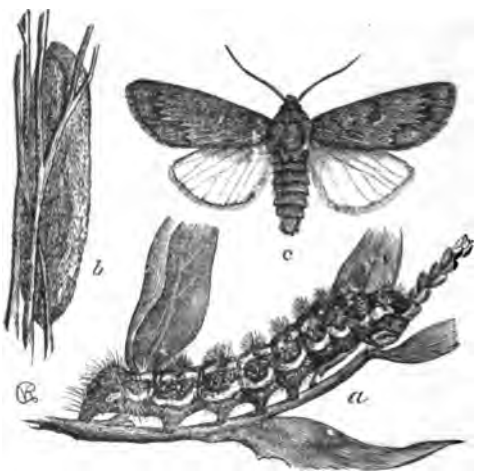

FIG. 66.—Acronycta oblinita. Moth, with pupa and larva.

10—*Acronycta oblinita.*—Body black or reddish-brown, the sub-dorsal space, and sometimes the dorsal space, dotted with yellow; a sub-dorsal pale interrupted stripe; a bright yellow stigmatal stripe; sometimes there is a transverse reddish band on same as all of the segments; hair whitish, reddish or black, in the spreading clusters from black or reddish warts; venter dark colored or reddish-brown; head shining black or reddish, with a few hairs on the face; length, 1½ inches. Feeds on Smartweed, Hazel and Corn. June to October. Spins a cocoon. (D. W. Coquillett.)

11—*Leucarctia acræa.*—Body black, sometimes dotted with yellow and with a yellow dorsal stripe; above and below the spiracles is a yellow line; between these lines the body is dotted with yellow; the stripes in the two lowest rows are yellow, and the hair proceeding from them is reddish-brown, or mouse-colored; the remaining warts are black or brownish, and the hair proceeding from them is black or mouse-colored; head shining black, sometimes with a vertical white line in the middle of the face; length, 1¾ inches. Feeds on Ragweed (*Ambrosia artemisiæfolia*). June to October. Spins a cocoon. (D. W. Coquillett.)

12—*Arctia phalerata.*—Body black; a reddish or light-colored dorsal line; hair blackish or whitish, in spreading clusters from black warts; the hair, low down on each side of the body, is sometimes mixed with reddish-brown; head shining black, with a few short hairs on the face; length 1½ inches. Feeds on grass. Found throughout the year. Spins a cocoon. (D. W. Coquillett.)

13—*Arsilonche henrici.*—A black dorsal stripe dotted with white, then a yellow stripe, then a pale yellow stripe dotted with white; the spiracles are situated on the lower part of this stripe; below this stripe is a pale yellow line; hair blackish, in the spreading clusters from deep yellow warts; venter dark colored; head black, dotted with white, with 2 white streaks on the top and a yellow V-shaped mark on the face; length 1½ inches. Feeds on Smartweed. June to October. Spins a cocoons. (D. W. Coquillett.)

14—*Scepsis fulvicollis.*—A dark dorsal line, then a pale greenish stripe on which is a row of small warts; next to this stripe is a pink line, then a pale yellow line, then a dark greenish, slate colored stripe on which is a row of small warts; the spiracles are situated on the lower part of this stripe, below the warts; next to this stripe is a pale yellow line, between this line and the base of the legs are 2 rows of small warts; from each of these warts proceeds a thin spreading cluster of whitish hairs; venter pale greenish-yellow; length 1 inch. Feeds on grass. June to August. Spins a cocoon. (D. W. Coquillett.)

GROUP IX.

The caterpillars belonging to this group have 16 legs, and their bodies are naked or thinly covered with warts or piliferous hairs. (When there is a cluster of six or more hairs issuing from each wart or piliferous spot the caterpillar is classed among those which have the "body clothed with hairs, at least on the sides.") The body is marked with transverse bands or rings; some also have longitudinal lines, but none lack the transverse bands or rings.

SYNOPSIS OF GROUP IX.

Body bluish-white, ringed with black.
  With a yellow stigmatal stripe..... 1
  Without this stripe..... 2
Body ringed with bluish-white, black and orange.
  With about 17 rings on each segment..... 3
  With about 13 rings on each segment. 4
  With about 11 rings on each segment..... 5
Body greenish-yellow, ringed with black..... 6
Body green.
  Ringed with black.....(Group X, No. 3
  Ringed with yellow on segments 4 and 12..... 7

1—*Calpe canadensis.*—Body bluish-white; a yellow stigmatal stripe; a dorsal row of transverse black dashes; a row of black dashes just above the stigmatal stripe; sometimes some of these dashes unite with those in the dorsal row, forming transverse black bands; venter black or deep green; thoracic legs brown, the others black; head shining yellow, marked with two black spots on the upper part of the face, three black spots near the jaws, and a black spot on each side of the head; length 1¼ inches. Feeds on Meadow-rue (*Thalictrum*). April to August. Spins a cocoon. (D. W. Coquillett.)

2—*Psychomorpha epimenis.*—Body white, marked on each segment with 4 transverse black bands; segment 11 slightly humped. Feeds on Grape. (J. A. Lintner.)

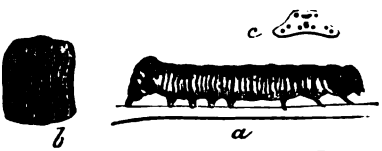

FIG. 67—Psychomorpha epimenis. Larva.

3—*Alypia octomaculata.*—On the middle of each segment is a transverse orange-red band, on which, on the middle segments, are about 8 black piliferous spots, from each of which proceeds a white hair; on each side of this band, on each segment, are 4 black rings alternating with 4 bluish white ones; beneath the spiracles is a wavy whitish stripe interrupted by the orange red bands; venter black, slightly variegated with bluish white and with the orange red bands extending on the legless segments; cervical shield and head shining deep orange yellow, marked with black dots. Feeds on Grape. May to October. Enters the earth. (C. V. Riley.)

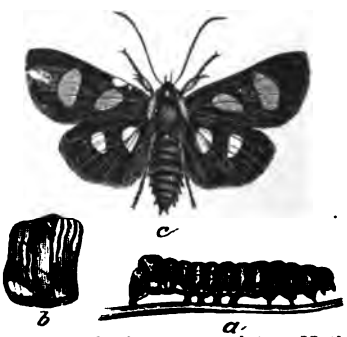

FIG. 68.—Alypia octomaculata. Moth and larva.

4——*Eudryas unio*—Body tapers forward regularly from segment 11, which is slightly humped; segment 1 white, marked with 4 transverse black bands, 2 of which are usually broken; on the middle of each remaining segment is a broad orange band on which are from 8 to 10 black dots; on each side of this band are 3 white and 3 black transverse rings; on the white ring in front of the orange band is a black dot in front of the spiracle; the orange band on segments 4 and 5 extends entirely around the body and is marked on the venter with 4 to 6 round black spots; head orange, marked and dotted with black; length 1⅛ inches. Feeds on Willow-herb (*Epilobium coloratum*). (J. A. Lintner.)

5—*Eudryas grata*.—On the middle of each segment is a transverse pinkish band, on each side of which, on each segment, are 8 black rings alternating with 2 bluish white ones; on each side of the first 3 segments are about 5 black dots situated on the pinkish band and arranged in a transverse row; on each side of the remaining segments are 9 black dots situated on the pinkish bands, the first two dots are arranged obliquely, the next 3 in a curved oblique row, and the lowest 4 nearly in the form of a rectangle; venter marked nearly as upper part of body; head yellowish-brown, dotted with black; length 1¼ inches. Feeds on Grape. July to September. Enters the earth. (D. W. Coquillett.)

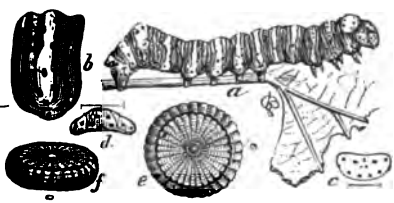

FIG. 69.—Eudryas grata. Larva and eggs.

6—*Papilio asterias*.—Body whitish or greenish-yellow; on the anterior part of each segment except the first is a transverse black band; on the middle of each segment is a transverse black band, in which is a row of 6 yellow spots, or a row of alternate yellow and black spots; head white, marked on the face with a black line, which nearly forms an oval, in which, and on each side of it, is a round black spot; on each side of the head is a black streak; length 1½ inches. Feeds on Carrots, Parsnips, etc. June to August. Suspends itself by the hind feet and a transverse loop. (D. W. Coquillett.)

7—*Papilio turnus*.—Body bluish-green; on segment 3 is a sub-dorsal black spot with a light blue center, and surrounded by a yellow ring, this by a black one; sometimes on the upper part of the yellow ring is a black dash; on the posterior part of segment 4 is a transverse yellowish ridge, in front of which is transverse row of 4 blue dots; below each spiracle is a blue dot; on top of the last segment is a transverse yellowish ridge, on which are two small prickles; venter pale green; head pinkish brown; length 1½ inches. Feeds on Cherry, Apple and Thorn. June to September. Suspends itself by the hind legs and a transverse loop. (D. W. Coquillett.)

GROUP X.

The caterpillars belonging to this group have 16 legs, and the body is naked or thinly covered with piliferous spots, from each of which issues one or two hairs; some have large warts, which are beset with short bristles; the body is green or bluish, and is unlined, or marked with four lines or less; the lines on both sides of the body are reckoned in, but not those on the venter.

SYNOPSIS OF GROUP X.

Body unlined, or marked with only one line (dorsal).
- Body covered with minute black tubercles 1
- Body destitute of these tubercles.
  - With shining black tubercle on segment 11 2
  - Without this tubercle.
    - Head yellow; warts blue and yellow 3
    - Head ashen brown; warts yellow or reddish 4
    - Head dark brown.
      - Head covered with down 5
      - Head not covered with down 6
    - Head green.
      - Warts on sides of body blue 7
      - Warts on sides white, ringed with black or brown 8

Body marked with two lines (stigmatal) 9

Body marked with four lines (sub-dorsal and stigmatal) 10

Body marked with three lines (dorsal and stigmatal).
- Head blackish-brown 11
- Head greenish 12

1—*Pamphila delaware.*—Body bluish-white, thickly covered with minute black tubercles; on the top of segments 11 and 12 is a black spot; cervical shield black, with a black dot on each side; head smooth, white, surrounded on the top and sides with black; a vertical black streak on the middle of the face, and a short black streak on each side of this; length 1 inch. (A. W. Chapman.)

FIG. 70.—Philampelus pandorus. Larva.

2—*Philampelus pandorus.*—Body pale green on the back, darker at the sides, marked with minute dark green rings which on the back become dark green dots; on each side of the body are 6 short irregular oval patches, margined with a black line and enclosing the spiracles which are bordered with pale crimson; on top of segment 11 is a shining black tubercle, surrounded with yellow, which is bordered with black; head green. Feeds on Grape and *Ampelopsis.* (B. Clemens.)

FIG. 71.—Attacus prometheus. Larva.

3—*Callosamia promethea.*—Body pale bluish-green; on each segment is a transverse row of about 8 warts; the 2 warts on top of the segments 2 and 3 are reddish brown; on top of segment 11 is a large yellow wart; the remaining warts are very small and deep blue; head yellow; length 2¼ inches. Feeds on Sassafras. July to September. Spins a cocoon. (T. W. Harris.)

4—*Telea polyphemus.*—Body green; on each segment is a transverse row of reddish or gold-colored warts, from each of which issues 1 or 2 hairs; the two lowest warts on the segments fron 5 to 10 inclusive are connected by a whitish line which passes just behind the spiracle, on the posterior part of the last segment is a V-shaped brown or dark colored line; spiracles reddish brown; venter dark green, with a yellow line in the middle; head ashen-brown; length 3 inches. Feeds on Hazel, Oak, Hickory, Elm, Basswood, Butternut, Walnut and Thorn. July to October. Spins a cocoon. (D. W. Coquillet.)

5—*Pamphila maculata.*—Body pale green; covered with a fine down; last 2 segments deep green; cervical shield light brown; head light brown, slightly granulated, thickly covered with a fine down; length 1 inch. (A. W. Chapman.)

6—*Pamphila phyleus.*—Body dull green; thickly covered with small pale points; cervical shield dark brown; head small, smooth, dark brown; length ⅞ inch. Feeds on grass. (A. W. Chapman.)

7—*Samia cecropia.*—Body light blue; on top of the segments 2 and 3 are two thick yellowish brown warts, encircled in the middle by a row of black tubercles; on top of the segments from 4

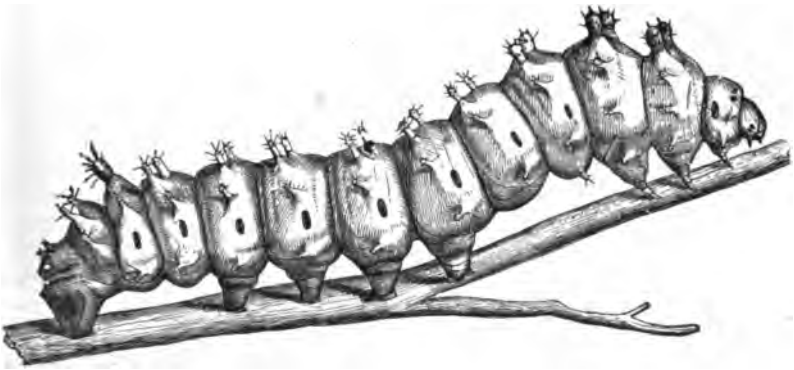

FIG. 72.—Attacus (Samia) cecropia. Larva.

to 10 inclusive are two light yellow warts; on top of segment 11 is a single light yellow wart; on either side of each segment are 2 or 3 blue warts; all of these warts are beset at the top by a few black bristles; venter deep green; head smooth, deep green; length 3 inches. Feeds on Willow, Apple, Plum, Cherry, Chokecherry, Currant, Maple, and Barbery. July to September. Spins a cocoon. (D. W. Coquillett.)

8—*Samia columbia.*—Body green; on top of segments 2, 3 and 4 are two long warts which are yellow at the base, above this is a raised black ring above which the wart is red and beset by 7 or 8 black spines; on top of segments 5, 6, 7, 8, 9 and 10 are two smaller warts of which the base is white, the remainder light yellow, with from 1 to 3 black spines at the tip; on top of segment 11 is a single large wart, the base of which is white, the remainder yellow, and beset at the base and middle with black bristles; on top of segment 12 are four white tubercles tipped with black bristles; on either side of each segment are 2 or 3 tubercles which are white, ringed at the base, the upper ones with brown, the lower ones with black; head green; length 3 inches. Feeds on Larch (*Larix Americana.*) July to August. Spins a cocoon. (T. B. Caulfield.)

FIG. 73.- Actias luna. Larva.

9—*Actias luna*.—Body green, the sutures of the segments yellowish; a yellow stigmatal line; on each segment is a transverse row of about six small green or pink warts from each of which proceeds one or two black hairs; scattered over the body are a few white hairs, some of which are thickened near the tips; head bluish-green; length 3 inches. Feeds on Walnut and Hickory. July to September. Spins a cocoon. (J. A. Lintner.)

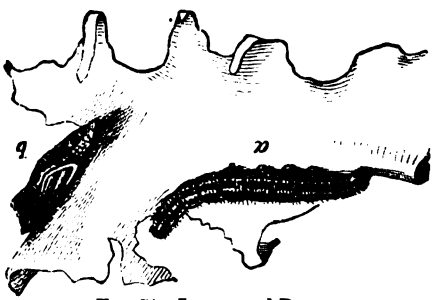

FIG. 74. Larva and Pupa.

10—*Pieris protodice*.—Body green or blue, thickly covered with black piliferous spots from which issues one or two short black hairs; a yellowish line on lower part of dorsal space, and one on lower part of sub-dorsal space, and sometimes a faint yellowish line on the stigmatal space; venter pale greenish, spotted with black; head green, dotted with black, and sometimes with a yellow spot on each side; length 1¼ inches. Cabbage and Mustard. July to October. Suspends itself by the hind feet and a transverse loop. (C. V. Riley.)

11—*Pamphila peckius*.—Body yellowish green, thickly covered with minute whitish hair-tipped tubercles; first segment grayish brown, the region of the spiracles and posterior half of under part purplish brown; an indistinct dark dorsal line; a yellowish sub-dorsal line; spiracles brownish; venter pale green; a raised transverse black line on top of segment 1; head very large, slightly flattened, spherical, roughened, downy, blackish brown; length nearly ¾ inch. Feeds on Grass. June to July. (D. W. Coquillett.)

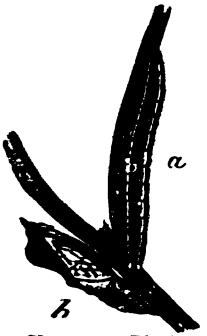

FIG. 75.—Pieris rapæ. Larva.

12—*Pieris rapæ.*—Body green, thickly covered with minute black prickles, from each of which proceeds a very short, black hair; a dorsal yellow line; a stigmatal row of yellow dots; head green, covered with minute black prickles; length 1¼ inches. Feeds on Cabbage, Horseradish and Mustard. July to November. Suspends itself by the hind feet and a transverse loop. (D. W. Coquillett.)

GROUP XI.

The caterpillars belonging to this group have 16 legs, and are naked, or have a number of piliferous spots, from each of which issues one or two hairs; the body is green or bluish, and is marked with 5 or more longitudinal lines, not counting those on the venter.

SYNOPSIS OF GROUP XI.

Body marked with 5 lines.
  Head green, marked with white or brownish..... 1
  Head green, unmarked.
    Body covered with minute prickles..... 2
    Body destitute of prickles..... 3
Body marked with more than 5 lines.
  With a pinkish stigmatal stripe..... 4
  Without this stripe..... 5

1—*Telesilla cinereola.*—Body green, lightest on the dorsal space; a dorsal and sub-dorsal whitish line; a white stigmatal stripe; a row of whitish dots at the dorsal space; venter deep green; head smooth, green, with a white dash on each side, and a white inverted V-shaped mark on the face; length 1¼ inches. Feeds on Ragweed (*Ambrosia artemisiæfolia*). June to July. Enters the earth. (D. W. Coquillett.)

2—*Satyrus nephele.*—Body green, thickly covered with minute prickles; a dark dorsal line; a white sub-dorsal and stigmatal line; on the posterior end of the last segment are two light colored projections; head large, deep green, thickly covered with minute prickles; length 1½ inches. Feeds on grass. July to September. Suspends itself by the hind feet. (D. W. Coquillett.)

FIG. 76.—Pyrophila pyramidoides. Moth.

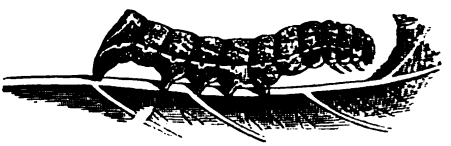

FIG. 77.—Pyrophila pyramidoides. Larva.

3—*Pyrophila pyramidoides.*—Body green, dotted with white or yellow; a dorsal and sub-dorsal white line, the latter forming an acute angle on segment 11, which is humped; a white or yellow stigmatal line; head smooth, green; length 1¼ inches. Feeds on Oak, Hickory and Lilac. May to June. Spins a cocoon. (D. W. Coquillett.)

4—*Crambodes talidiformis.*—Body green, dotted with white; a white dorsal and sub-dorsal line; a white line on the sub-dorsal space; a pink stigmatal stripe, whitish at the edges; sometimes there is a dark stripe between the stigmatal stripe and the line on the sub-dorsal space; head green, with a few dark streaks on the top; length 1¼ inches. Feeds on Blue Vervain (*Verbena hastata*). June to July. Enters the earth. (D. W. Coquillett.)

5—*Adipsophanes miscellus.*—Body deep green; from the spiracles on one side of the body to those on the other side are about 10 wavy white lines; below the spiracles is a whitish stripe; venter green, with 4 white lines, the 2 middle ones the widest; the 2 anterior pairs of abdominal legs are much smaller than the 2 posterior pairs; head green, striped vertically with brown and white; length 1¼ inches. Feeds on *Verbena hastata.* May to August. Spins a cocoon. (D. W. Coquillett.)

GROUP XII.

The caterpillars belonging to this group have 16 legs, and the body is naked, or thinly covered with prickles or piliferous spots, from each of which issues one or two short hairs; the body is of some other color than green, and is unlined or marked with 3 lines or less, not counting those on the venter.

SYNOPSIS OF GROUP XII.

Body marked with 2 lines.
  With a high projection on top of segment 4 1
  Without this projection 2
Body marked with 3 lines (dorsal and sub-dorsal).
  With a shining black tubercle on segment 11 3
  Without this tubercle ..... (Group XIII, No. 5)
Body unlined, or marked with only 1 line (dorsal).
  Head grayish.
    With 2 white spots on upper part of face 4
    Without these spots 5
  Head brownish-black.
    With 2 rows of tubercles on the back 2
    Without these tubercles 6
  Head reddish or yellowish-brown 5

1—*Notodonta unicornis.*—A wide brown dorsal stripe on the first 3 segments; side of segment 1 pale greenish, sometimes marked with reddish; sides and under part of segments 2 and 3 deep green; rest of body pale yellowish-brown; a sub-dorsal dark line extends from segments 3 to 10; on segments 9 and 10 is sometimes a light colored V-shaped mark; on top of segment 11 is sometimes a blunt pointed conical projection; on top of segment 4 is a high projection, divided at the tip into 2 points; head pale brown; length 1⅛ inches. Feeds on Plum. June to August. Spins a cocoon. (D. W. Coquillett.)

2—*Pseudoglossa lubricalis.*—Body dull purplish-brown: sometimes a broken dull pinkish-brown line on a line with the tubercles: on the back are 2 rows of alternate black and pale yellowish tubercles, the black ones situated on the anterior part of each segment: the tip of each tubercle is bent over at nearly right angles, the tips of the black ones being bent backwards and those of the yellowish ones forward; at the bent angle is a short brownish bristle; some of the black tubercles are ringed with yellow at the base: on the sides of the body are a few piliferous spots, each giving rise to a short bristle; head dirty blackish; length $\frac{7}{8}$ inch. Feeds on Grass. September to July. Spins a cocoon. (D. W. Coquillett.)

3—*Philampelis achemon.*—Body pale reddish-brown, darker at the sides, the anterior segments dotted with black; a dark brown dorsal line; a pale reddish sub-dorsal line; 6 stigmatal irregularly oval

a a

FIG. 78.—Philampelus achemon. Larva.

white patches, bordered with black; on top of segment 11 is a shining black tubercle, contained in a brown patch which is surrounded by black and white lines; head reddish-brown. Feeds on Grape and the Virginia-creeper. Enters the earth. (B. Clemens.)

4—*Catocala lineella.*—Body dull greenish-yellow; a light colored dorsal stripe, on each side of which is a darker stripe on which is a row of black piliferous spots; a stigmatal row of black piliferous spots; on top of segment 8 is a slight prominence; venter greenish-white, with a row of black spots in the center, one spot to each segment; the 2 anterior pairs of abdominal legs are smaller than the 2 posterior pairs; head gray, with 2 white spots on the upper part of the face; length 1 inch. Feeds on Oak. May to July. Spins a cocoon. (D. W. Coquillett.)

5—*Chytolita morbidalis.*—Body reddish, mottled with yellowish: a dark dorsal stripe; segment 1 darker than the others, and dotted with black; piliferous spots brownish; head dark flesh or grayish; length $\frac{7}{8}$ inch. Feeds on Hazel and grass. April to July. Spins a cocoon. (D. W. Coquillett.)

GROUP XIII.

The caterpillars which belong to this gronp are provided with 16 legs, and their bodies are naked or thinly covered with small prickles or piliferous spots, from each of which issues one or two hairs; they are of some other color than green, and are marked with 4 or 5 longitudinal lines.

SYNOPSIS OF GROUP XIII.

Body marked with only 4 lines 1
Body marked with 5 lines.
  With a row of black spots on the venter 2
  Without these spots.
    Head gray, roughened 3
    Head black or brownish-black 4
    Head reddish or yellowish-brown.
      With a row of black spots on the dorsal space 5
      Without these spots 6

1—*Argynnis bellona.*—Body pale purplish; on each side of the body are two whitish lines; below the upper line is a row of small black spots; on each segment is a transverse row of about 6 small black warts, each of which is beset by short bristles; the two warts on top of each segment are joined together by a V-shaped dark line; head smooth, black, the face thinly covered with short hairs; length 1⅓ inches. Feeds on Violets. October to April. Suspends itself by the hind feet. (D. W. Coquillett.)

2—*Catocala grynea.*—Body ashen brown, sometimes with a reddish cast; an indistinct light-colored dorsal line; on each side of the body are 2 or 3 indistinct light-colored stripes; on the dorsal space is a row of small prickles, those on the posterior part of each seg-

ment the largest; on each side of each segment are three small points arranged in the form of a triangle; on top of segment 8 is a projection, which is sometimes of a redder color than the body; there is sometimes a black oblique dash on each side of segment 11; venter light-colored, sometimes tinged with red, marked with a row of black spots, one spot to each segment; just above the legs is a short fringe; the two anterior pairs of abdominal legs are much smaller than the two posterior pairs; head reddish, or grayish-ash, sometimes bordered on the top and sides with black, bilobed on top. with a small reddish-brown point on each lobe; length, 1¼ inches. Feeds on Apple. May to July. Spins a cocoon. (D. W. Coquillett.)

3—*Neonympha eurytris.*—Body light gray, mottled with dark gray, and thickly covered with minute gray points; a dark dorsal stripe; an indistinct dark-colored undulating sub-dorsal line; below the spiracles is a light-colored fold; spiracles black; venter greenish-gray, marked with a dark line in the middle; on the posterior part of the last segment are two divergent blunt-pointed projections, concolorous with the body; head much wider than segment 1, concolorous with the body, the upper angles produced into a blunt point: length ⅝-inch. Feeds on grass. Found throughout the year. Suspends itself by the hind feet. (D. W. Coquillett.)

4—*Hypropepia fucosa.*—Body dark reddish-brown or brownish-black: a yellow dorsal line; a stigmatal and indistinct sub-dorsal yellow line; sub-dorsal space mottled with yellow; warts black, and from each proceeds one or two stiff black bristles; head brownish-black, with a few short whitish hairs on the face; length ⅝-inch. Feeds upon the moss, etc., which grows upon the bark of Oak trees. May to September. Spins a cocoon. (D. W. Coquillett.)

5—*Agrotis c-nigrum.*—Body mottled brownish or ashen, sometimes tinged with green; a dorsal and sub-dorsal light-colored line, the latter sometimes wanting; below the spiracles is a light-colored stripe; on the dorsal space is a row of oblique black spots, most distinct on the posterior part of the body, one spot to each segment; the two plates on top of each segment are sometimes connected with each other, forming a semi-circle; head yellowish-brown, marked with two curved black spots on the face, and with two black dashes on each side of the head; length 1¾ inches. Feeds on grass. Found throughout the year. Enters the earth. (D. W. Coquillett.)

6—*Eudamus proteus.*—Dorsal space gray, dottted with black, and yellowish, arranged in transverse rows; sub-dorsal space gray, the upper half dotted with black; a fine dark-colored dorsal line; a bright yellow sub-dorsal stripe, dilated on segment 12; a pale green stigmatal line; cervical shield lustrous black; anal plate yellow, the middle greenish; venter pale green; head large, circular, slightly depressed on top, brown, with a yellow spot on each side of the mouth, narrowing upward, and fading into the light brown of the upper part of the face; length 1½ inches. Feeds on *Phaseolus perennis* and *Cliteria mariana.* (A. W. Chapman.)

GROUP XIV.

The caterpillars belonging to this group have 16 legs, and their bodies are naked, or thinly covered with piliferous spots from each of which issues one or two hairs; the body is of some other color than green, and is marked with more than five lines.

SYNOPSIS OF GROUP XIV.

Head unmarked.....1
Head marked with black or brown.
  Stigmatal line dark-colored.....2
  Stigmatal line light-colored.....3

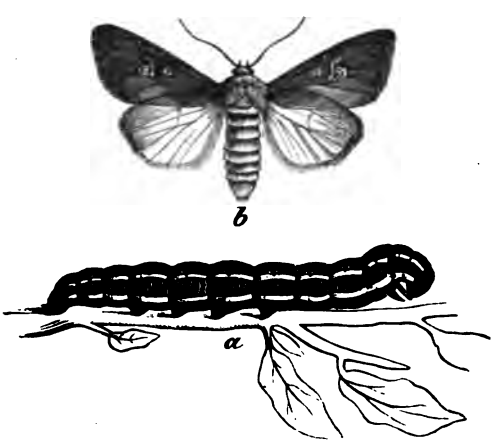

FIG. 79.—Ceramica picta. Moth and larva.

1—*Ceramica picta.*—Sometimes a white dorsal line; a black dorsal stripe, sometimes dotted with bluish white, then a yellow stripe, on which is a row of black dots, then a bluish stigmatal stripe, crossed by transverse black dashes, and having on it a row of black dots; venter pale-colored, or dark brown; head smooth, yellowish brown. Length, 1⅝ inches. Feeds on Smartweed, Corn, Peas, Beans, Burdock and Yellowdock. June to October. Enters the earth. (D. W. Coquillett.)

2—*Leucania harveyi.*—A white dorsal line, then a dark brown stripe, then a pale yellow line, then a light brown line shading into yellow at the lower edge, then a dark brown stigmatal line, then a pale yellowish line, then an indistinct light brown line; venter pale yellow; head yellow, with a somewhat triangular mark on each side. Length, 1¼ inches. May to September. Enters the earth. (D. W. Coquillett.)

3—*Leucania phragmitidicola.*—A light dorsal line, then a wide dark stripe, on which is a row of black dots, or, in place of this stripe, there is a dark, then a light, then a dark line; next to this is a light line, then a dark or black line, then a light line, then a dark or pinkish stripe, lightest in the middle, then a light line, which is sometimes wanting, then a dark or black stripe, lightest in the middle, then a light stigmatal line, then a pinkish stripe, which is sometimes wanting; venter dark-colored; head pale brownish, with two black dashes on each side, and with two curved black lines on the face. Length, 1½ inches. Feeds on grass. Found throughout the year. Enters the earth. (D. W. Coquillett.)

THE HESSIAN-FLY.

Its Ravages and Habits, and the Means of Preventing its Increase.

By DR. A. S. PACKARD, Jr.

EXPLANATION OF PLATE I.

A healthy stock of wheat on the left, the one on the right dwarfed and the lower leaves beginning to wither and turn yellow; the stem swollen at three places, near the ground where the flax seed (*h*) are situated, between the stem and sheathing base of the leaf.

a egg of the Hessian Fly (greatly enlarged, as are all the figures except *e* and *h*),

b, the larva, enlarged, the line by the side, in this and other figures, showing the natural length.

c, the flaxseed, puparium or pupa case.

d, the pupa or chrysalis.

e, the Hessian Fly, natural size, laying its eggs in the creases of the leaf.

f, female Hessian Fly, much enlarged.

g, male Hessian Fly, much enlarged.

h, flaxseed between the leaves and stalk.

i, Chalcid or Ichneumon parasite of the Hessian Fly, male, enlarged.

Figs. *b*, drawn by Mr. Riley; *d* and *f*, by Mr. Burgess; *a*, *g*, and *c*, *i*, by the author; drawn on wood by L. Trouvelot.

PLATE I.—THE HESSIAN FLY AND ITS TRANSFORMATIONS.

EXPLANATION OF PLATE II.

Fig. A. Side view of the female Hessian Fly, greatly enlarged.
a, three joints taken from the middle of the antennæ of the female; *a'*, the three terminal female antennal joints; *a''*, the four basal, and *a'''*, the two terminal male antennal joints; *b*, a maxillary palpus; *c*, scales from the body and wings; *d*, *e*, side and vertical view of the last joint of the foot, showing the claws and foot-pad or pulvillus between them, and the scales on the joint. Drawn by Mr. E. Burgess.

Fig. B. Larva magnified, with the breast-bone in the 2d ring next to the head.
B*a*, the breast-bone highly magnified: B*b*, head from beneath, enlarged; B*c*, larval spiracle and its tubercle and trachea leading from the *spiracle*. *B*. drawn by Mr. Riley; B*a*, *b*, *c*, by Mr. Burgess.

Fig. C. Side and front view of the pupa or chrysalis. Drawn by Mr. Burgess. The abdomen of the side view of pupa is rather long, as the insect, when drawn, was just emerging from the semi-pupa stage, which it assumed December 1st.

Fig. D. The flaxseed, puparium, or pupa case. The line by the side of the complete figures denotes the natural length of the insect.

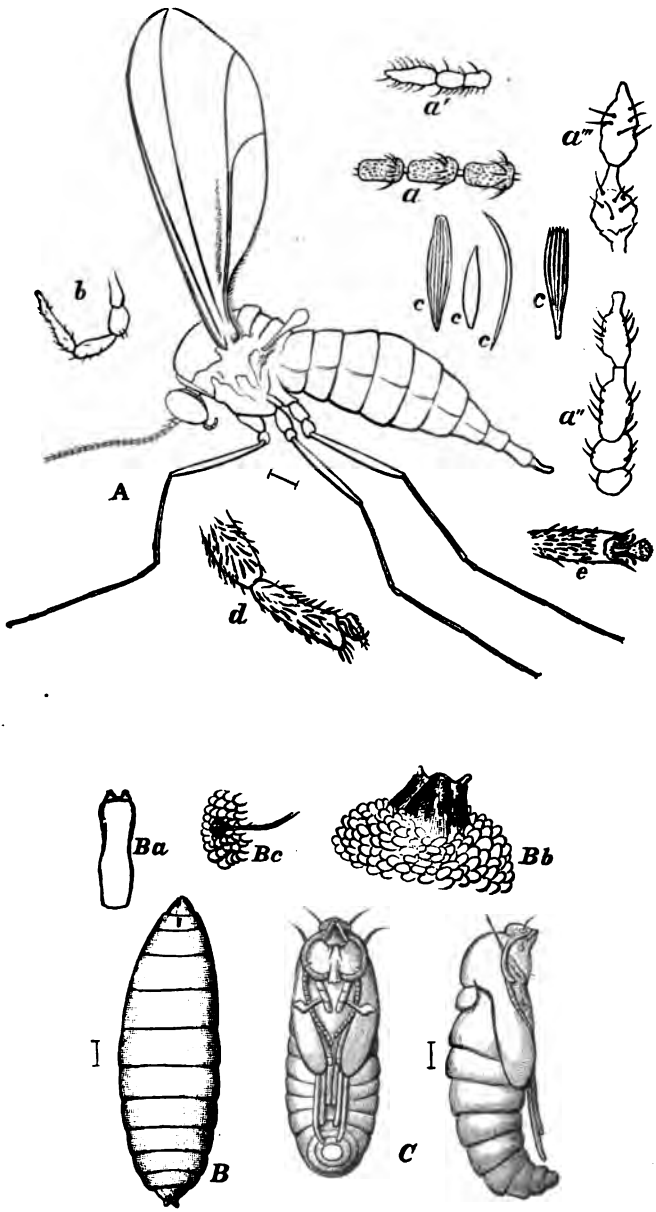

PLATE II.—TRANSFORMATIONS OF THE HESSIAN FLY.

THE HESSIAN-FLY:

ITS RAVAGES, HABITS, AND MEANS OF PREVENTING ITS INCREASE.

INTRODUCTION.

Next to the Rocky Mountain Locust, the Cotton-worm and Chinch-bug, the Hessian-fly is at present the most destructive of our noxious insects. It attacks wheat, our most important agricultural product, and at times has been so abundant as to cause farmers to abandon the culture of this grain over large sections of the Union. While the fly has been well known and destructive for about a century, the vast extension within a decade of years of the wheat-growing area of the West, and the corresponding prevalence of the fly in the Northwestern States, together with its wide-spread destructiveness, has given fresh interest and importance to this pest. Moreover, the cultivation of wheat in the New England States, where, about twenty years ago, it was abandoned on account of this fly and the Wheat Midge, has been resumed in part, so that the dissemination over the the wheat area of the United States of the known facts in regard to its habits and modes of doing injury seems necessary. This area, as seen in part by the map* appended to this Bulletin, which has been compiled from Walker's Statistical Atlas, embraces all of the United States North of the 35th parallel of latitude and east of the 93d meridian, with the addition of tracts in Dakota, Montana, Colorado, New Mexico and Utah, as well as in California, Oregon and Washington Territory. These last named wheat areas were not mapped by General Walker, and have been omitted on the present map, since the Hessian-fly is not known to exist west of Eastern Kansas.†

*Taken from a report on the Rocky Mountain Locust and other insects now injuring, or likely to injure, field and garden crops in the Western States and Territories. By A. S. Packard, Jr. From the Report for 1870 of Hayden's United States Geological Survey of the Territories.

†The map is necessarily omitted. C. T.

Though the habits of the Hessian-fly are tolerably well known, much additional knowledge is desirable regarding its distribution, its breeding habits and parasites, while in order to properly apply the best preventive remedies, to stamp out the pest as it appears in new wheat sections, we need the results of a large number of experiments as to the effects of early and late snowing, what varieties of wheat to sow, and as to the value of manures and artificial fertilizers in promoting the rapid and healthy growth of the young wheat, by which it may outgrow the weakening effects of the worm and ripen its grain.

The object of this Bulletin is not so much to convey new information to wheat-growers as to briefly state what thus far is known as to the appearance, ravages, habits, and remedies against its attacks. By widely disseminating this knowledge, seeking fresh facts from practical farmers all over the country, who are hereby asked to send to the author all new facts and results of valuable experiments, it is hoped and believed that the Commission will be able in a future report, after another season's work in the field, to throw further light on the subject.

Although this pamphlet has been prepared by but one member of the Commission, the writer is indebted to Prof. C. V. Riley, for drawings, specimens, and data; to Prof. Thomas, for facts and suggestions; and would also acknowledge aid received from Prof. Prof. A. J. Cook, of the State Agricultural College, Lansing, Mich., whose address on the Hessianl-fly has been of much service, and liberally quoted in this bulletin; and also from the correspondents and agricultural papers mentioned here and there in the following pages.

LOSSES OCCASIONED BY THE HESSIAN FLY.

This fly first became a serious pest, in this country, in the year 1779, although, as will be seen further on, in the section on the distribution of the insect, it probably began its work of destruction on Staten Island and Long Island, in 1776. According to Fitch, 1779 was probably the date when its ravages actually began. "The crops of wheat were severely injured or wholly destroyed by it, in King and Richmond counties, during several of the following years, and each succeeding generation regularly enlarged the sphere of its devastations, in every direction."

In 1781 the fly almost totally destroyed the wheat crop in Eastern Long Island, and in 1786 the crops were either totally or partially destroyed in New Jersey, in and about Prospect, an area situated forty miles southwest of Staten Island. In 1786 and 1787 the ravages of this pest attracted much attention in New York and Pennsylvania; the wheat crop on Eastern Long Island having been "cut off almost universally." About Trenton, N. J., in 1788, the wheat crop was in many cases a total failure. As wheat, in large quantities, was at this period exported to Great Britain, "accounts of the appalling havoc that this insect was making excited the attention of the government there, and aroused their fears lest so dreadful a scourge should be introduced into that country by means of the American grain." (Fitch.) As a result, the exportation of grain from America was prohibited, until the English government was

assured that the fly with eggs could not be introduced in the grain. As long since as 1800, Dr. S. L. Mitchell, of New York, affirmed that "the insect is more formidable to us than would be an army of twenty thousand Hessians." (Herrick.)

Between 1789 and 1803, severe losses ensued from its attacks in Saratoga and Washington counties, New York. "On two or three occasions, many of the fields in Saratoga were entirely destroyed."

In 1804, President Dwight, of Yale College, remarked that "this insect is feeble and helpless in the extreme, defenseless against the least enemy, and crushed by the most delicate touch, --yet for many years it has taxed this country annually more, perhaps, than a million of dollars." (Herrick.)

In 1803 and 1804, in the neighborhood of Richmond, Va., "they swept whole fields. In 1817, it "renewed its ravages, in various sections of the country; was unusually abundant," and "in parts of Maryland and Virginia, it was, perhaps, more destructive than it had ever been before."

At what year the Hessian-fly first occurred in the New England States is uncertain; so far as we can ascertain it was first noticed at New Haven, Conn., in 1833, by Mr. Herrick, a careful entomologist, but without doubt it was introduced from New York early in the century.

In Lower Canada it was, according to Hind,* between 1805 and 1816, "prevalent and destructive in some parts," but in 1830-'36 it disappeared in Lower Canada.

The fly first appeared in 1837 at Paw Paw, Mich., in the second crop sown in Van Buren county; none had been raised at a point nearer than twelve miles. (D. Woodman.)

The Hessian-fly has been known in Person County, North Carolina, for fifty years; and another correspondent writes us from Goldsboro, N. C., that—

"Previous to the period, say 1840, our farmers had been accustomed to sow wheat as early as September, but a fly, called by them the 'Hessian-fly,' so depredated that they deferred sowing to the latter part of November, and now, generally, to 'between the Christmases' (new and old Christmas); their crop is now unmolested by the Hessian or any other fly."

The losses in Pennsylvania in 1842 were heavy, the wheat crop of the State being estimated at 20 per cent. less than in the previous year, the fly being the principal cause of the loss. At this year Ohio was visited by them, when "it appeared to be increasing so much that serious apprehensions were beginning to be felt respecting its future ravages." (Fitch.)

Great havoc in many fields in Maryland and Virginia was committed by it in 1843. In the following year it did much injury in Northern Indiana and Illinois and the contiguous parts of Michigan and Wisconsin, in many places occasioning "almost a total failure of the crops." In Michigan the wheat crop was almost an entire failure. On Long Island and at Rochester, N. Y., and throughout Pennsylvania the losses this year were severe; the following year

*Essay on Insects and Diseases injurious to the Wheat Crops, by H. Y. Hind, Toronto, Canada, 1857, 8°, p. 139.

it did more or less injury all over the State of Illinois, while in the central parts of Maryland the crops, in many instances, were rendered totally worthless. "In Georgia, moreover, its ravages in the counties around Millegeville are said to have been dreadful; whole fields were totally destroyed, and others yielded not more than a fourth of an ordinary crop."

In 1846, in the upper counties of Georgia, it was said "the fly has committed such ravages upon the wheat as scarcely to leave enough seed for another year." Throughout the State of New York it was destructive this year; in the western section the loss from this insect was estimated at not less than 500,000 bushels. In Maryland this same year (1846), as recorded by Fitch. "so great ravages have not been committed by the Hessian-fly since 1817. On some of the best land wheat has been plowed up, and other portions are so much injured that they will not be worth harvesting. At least one-half of the crop of Talbot county has been destroyed." And in the upper counties of Georgia it is said "the fly has committed such ravages upon the wheat as scarcely to leave enough seed for another year."

In 1847 the losses were generally widespread but light, while in 1849 it was destructive in some of the counties in New York, and especially in Ohio. From this date until 1853 it was not destructive, but this year it "committed great ravages in some parts of Pennsylvania." In 1854 it was destructive in Aroostook county, Maine, as well as in Michigan.

From 1855 to 1860 the Hessian-fly attracted little attention from the agricultural community. In 1860 the fly "had reached as far west as Iowa and Minnesota, and in 1863 the wheat-fields along the Detroit and Milwaukee Railroad promised nothing because of the ravages of this pest." (Prof. Cook.)* In 1866 it is reported to have occurred in Maryland, Delaware and Ohio, and in 1863, according to a writer in the American Entomologist, about Fond du Lac, Wis., "much of the wheat crop was damaged by it."

In 1871 it was generally prevalent throughout the Middle States from South and North Carolina and Virginia to Missouri northward; also occurring in Kansas, Georgia and Minnesota, and in 1872 and 1873 was destructive and widespread in Maryland, Ohio, Indiana, Illinois and Eastern as well as Western Virginia, as well as in Michigan, "as also in the States south and west" of the last-named commonwealth.

In 1874 it was widespread, but much less destructive; in 1865 and 1876 it was especially destructive in Missouri, Pennsylvania and Virginia. In 1876 "it appeared in force in many of the southern counties of Michigan, reaching as far north as Mason, in Ingham county, causing much destruction." (Professor Cook.)

In 1877 the losses again became heavy over a large part of the wheat area. At Lawrence, Kansas, the early-sown wheat "suffered a good deal from the ravages of the Hessian-fly." At Gardner, Kansas, all early-sown wheat "was full" of the "flaxseed" of the

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*In his seventh report, written apparently in 1862, Dr. Fitch remarks: "We hear of it at the present time as very destructive in Illinois and some of the contiguous States, the crop in many wheat-fields being totally ruined by it."

Hessian-fly. At Saint Genevieve, Mo., the fly was "much worse than for years past." At Independence, Mo., the crop in some fields was nearly a failure. In Henderson county, Kentucky, while prevalent, only one wheat-field was "badly damaged;" while in Vanderburgh county, Indiana, "many fields were infected." In Central Illinois a correspondent of the Cultivator and Country Gentleman states that "the Hessian-fly has been present in the lower portion of the winter-wheat region for several years," and in 1877 "it appears that the Hessian-fly is generally present in greater or less numbers over the whole winter-wheat region; that in almost every case it has attacked and done more or less damage to early-sown wheat fields."

In Michigan the fly, while troublesome in 1876, was also very generally so in the succeeding year, as stated by Professor Cook, as follows:

"This year, 1877, we hear of it as more broadly distributed in our State, while complaints come to our ears from Ohio, Indiana, Illinois, New York and Pennsylvania. Since writing the above, I have passed through our State and also the State of Ohio, on two of the different trunk lines of railroads, and I find that all through Southern Michigan and all of Ohio, at least north of the latitude of Columbus and Dayton, this insect abounds in force."*

The following extracts from Michigan papers show the situation in that State this year:

"The farmers are complaining of the ravages of the 'fly' in their wheat fields. Much damage is reported."—*Jonesville Independent.*

"Mr. James Taylor showed some wheat-stalks from his farm today which had over forty insects in one stalk."—*Kalamazoo Gazette.*

"Wheat heading out ten days to two weeks earlier than usual this year, and doubtless much of it will be ready to cut in June."—*Portland Observer.*

"The 'fly,' or 'insect,' as called by the farmers, is playing sad havoc with the wheat crop in this county. Not over half a crop will be realized."—*Kalamazoo Gazette.*

"The fly is very seriously injuring the wheat at Porter. One of the largest farmers in that township yesterday told us that a few weeks ago he would not have taken 3,000 bushels for his crop, but now he would gladly take 1,000."—*Paw Paw Courier.*

"Much complaint is now heard from all sides in regard to the work of the insects in early-sown wheat. The dry weather has so far retarded the growth as to give the pests the power to destroy. There is little question that early-sown wheat is suffering greatly."—*Marshall Expounder.*

"Farmers from all over the county come to town looking doleful enough. The wheat crop promises to be almost a total failure. Two weeks ago everybody was happy over the prospects of an abundant harvest, but now flies, worms and drought seem to have ruined the crop and blighted every home."—*Marshall Statesman.*

"Farmers from all the adjoining towns complain that their growing wheat crops are badly injured by the insects. Wheat fields which promised a heavy yield two weeks ago, it is thought will not

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* The Hessian-fly. A lecture by Prof. A. J. Cook, of the Michigan State Agricultural College, delivered at Farmers' Institute held at Paw Paw and Climax, Mich., 1878, 8vo., p. 14.

produce over half a crop, and many fields are reported as already nearly destroyed. Naturally some allowance should be made for the apprehensions of those whose fields are thus ravaged; but there is no doubt that the crop through this section is materially damaged by these destructive pests."—*Battle Creek Journal.*

Mr. T. F. Miller, of Richland, brought into our office Monday morning a handful of wheat (taken from a farm on the prairie) that is literally alive with the insect. He says that, in his opinion, nearly every field in Richland is so badly affected that there cannot be half or even a third of a crop. The dry weather has stopped the growth, and the wheat is more affected on that account. We hear the same report from other parts of the county. Grain is also suffering for want of rain."—*Kalamazoo Gazette.*

The following extract, from the New York *Cultivator and Country Gentleman,* will give the condition of affairs in West Virginia:

"Since reading your article making known Mr. A. S. Packard's request, in the issue of November 15, I have had occasion to make a business trip through Hardy, Hampshire, Mineral and Grant counties, and find upon examination that there is not a single field which is not more or less damaged by the fly. The early-sown wheat, having luxuriant growth, does not seem to be entirely destroyed, but has the appearance of mixed yellow and green. I find, upon close examination, it is filled with the fly. Other fields, sown after corn-cutting, show a greater amount of damage; one in particular, a limestone upland, was scarcely tinted with green, the fly having already consumed nearly the whole of it. My course from this point was north and west. I find that the farther north I travel the more damaged is the wheat. In this (Hardy) county the damage, so far, appears not to be material. Some crops of early-sown wheat were considerably shortened last year, the first year in many that we have felt the effects of the fly. One farmer, whose wheat seemed already a failure, asked me what he should do. I advised when the land was dry, or hard frozen, to put all the sheep he could get upon it, and keep them there until they had eaten it off as close as a sheep could nip, as the only remedy. I thought that the sheep could do no worse than what must be eventually done by the fly, and it might save the crop. He asked me if I thought the insect would be 'wholesome for the sheep.' This I could not answer, but refer the query to you."—R. M. W., Moorefield, W. Va.

A correspondent of the same paper thus records the injury done by this insect about Syracuse, N. Y.:

"Wheat sown early, from the 1st to the 20th of September, has made an extraordinary growth. The fine weather was favorable; besides more care has been paid to good culture than before. The seed also has been selected, cleaned and graded with greater care, showing much progress. From appearances now, it will result in a loss. Whole fields, and parts of others, are turning yellow, showing the ravages of the fly to a larger extent than I ever before witnessed. It begun to turn yellow on knolls, or where the plaster rock came near the surface, and was thought only the effect of dry weather, but now it has extended all over early-sowed fields. Should the

warm weather continue, great injury will result to the entire crop, as it has been sown much earlier than usual, and has looked remarkably fair. Later sowing, with a greater breadth of spring wheat, is the only remedy now offered. Will other parties in different sections make an examination and send notes?"—C., Syracuse, N. Y.

While, so far as we have been able to learn, no serious damage, if any, has been done to wheat in New England by this pest since 1854, in Western Canada it again became abundant in 1874, but most injurious in 1876 and 1877. In 1876 it appeared in great force in the townships of Amabel, North Bruce, Grey and Kippel.

In 1878 the losses were still heavy in Southern and Central Michigan, but in 1879 the insect seemed to be moving northward, the greatest amount of injury being sustained in the northern part of the State, the fly being scarce in the middle of the State.

As regards its abundance in southeastern Michigan in 1878 and 1879, Mr. F. S. Sleeper, of Galesburg, near Kalamazoo, writes me as follows:

"In February, 1878, I noticed what was to me something new. The month was very warm and spring-like. For nearly three weeks the temperature did not reach the freezing point. About the middle of the month I noticed many flies flying over the wheat and depositing their eggs, but, so far as I could see, none reached the 'flaxseed' state. I have several times noticed the fly depositing her eggs as late in the autumn as October 26.

"Since the summer of 1877 no very serious damage was done until last spring (1879). Then the fly put in an appearance. On the 26th of May, above one field of wheat the air was almost black with them. I never saw such a sight before. I had fears that the fall-sown wheat would be badly damaged, but it is not so, as none but early-sown wheat is damaged in the least. I presume it is owing to the fact that September was cold, so that probably the sudden atmospheric changes destroyed all that had not reached the pupa state."

In 1878 it did great damage in Dickson county, Tennessee. In Maryland, the winter wheat in the neighborhood of Baltimore, Md., was, in 1879 and the spring of 1880, seriously affected. In Central New York, in Seneca and Tompkins counties, considerable damage was done in 1878 and 1879. About Watertown, N. Y., some injury was done in 1879, one field of wheat being ruined.

In 1879 apprehensions that injury would be caused by the fly were felt in Lowell, N. C.

These facts indicate that the losses from the Hessian-fly are greatest in the grain raising areas of the middle and northwestern States, and adjoining regions of Canada, and that the New England States have been comparatively free from their attacks, though this is perhaps mainly due to the fact that so little wheat is cultivated there. No statistics as to the losses have ever been collected, either by the State or national governments, but they have been sufficient to occasion much consternation and alarm at certain years.

By reference to the chapter on the supposed periodicity in its attacks or years of maximum abundance, the reader may learn approximately by the history of the past how often its more serious attacks may be probably renewed.

DESCRIPTION OF THE HESSIAN FLY.

This insect belongs to the Diptera or two-winged insects, of which the common house fly is the best-known type. It belongs to the family *Cecidomyidæ*, a large group of minute flies, resembling the crane flies or daddy-long-legs (*Tipulidæ*), but of dimunitive form. They are nearly all gall-flies, the females laying their eggs by means of the soft extensible end of the body which slides back and forth like the joints of a telescope. The irritation caused by the eggs results in the swelling of the stems of plants, or the formation of tumors or galls on the leaves and buds. The Hessian-fly, as we shall see farther on, does not produce true galls in this way, but the presence of the insect in the flaxseed state, between the leaf and the stalk, causes the stem to swell, and the leaves to wither and die. The scientific name is *Cecidomyia destructor* of Say.

The female (Plate I, *f*; II, *A*.)—The body is rather slender, uniformly dark brown, the head is round, but somewhat flattened, the eyes are black, the wings uniformly dull smoky brown, while the legs are paler brown than the rest of the upper side of the body. The body, wings and legs are provided with fine hair-like scales (Plate II, *A*, *c*), those on the wings being in many cases quite broad and ribbed, somewhat like the scales on the wings of a butterfly or moth. The pale brown antennæ are about half as long as the body, the joints are very distinct, like a string of beads, each one being oval-cylindrical. There are seventeen joints, the two basal ones being large, nearly globular, flattened lengthwise, and nearly half as long as thick, and each of nearly equal size; joints 3–5 are longer than the remaining ones, and are slightly contracted in the middle; the remaining 6–17 gradually decrease in length, each joint being provided with about ten hairs, arranged in a rude whorl; the terminal joint (Plate II, *A*, *a*) is long and conical. The legs are of the same color as the under side of the body, being a little paler than the back. The abdomen is rather full, with nine well-marked rings or segments, the paler small ovipositor forming the tenth. The latter is one-half as thick as the ninth segment, and about two-thirds or quite as long; is slightly sinuous and a little smaller at the end than at the base. The wings are dusky, with a fine fringe around the edge, and there are three veins. The subcostal vein ends near the base of the submedian vein and runs nearly parallel to the subcostal vein, while a branch (its base disconnected with the main vein) extends along the middle of the wing; the submedian vein is well developed, at the base throwing off the median vein at a little distance from the base of the wing, and losing itself before turning down to the edge of the wing. The length of the fly is 2½ millimeters, or about one line, *i. e.*, one-tenth of an inch.

The male.—The male is rather smaller than the female, being distinguished by the long slender abdomen, and the longer and more hairy antennæ. The joints of the latter (Fig. A, a″, a‴) are twenty in number, oval, the terminal one conical, and all provided with a few hairs, much longer than in the female, and arranged in a decidedly verticillate manner. "The abdomen in the living specimen is black or brownish black, with bands at the sutures both

above and beneath, of a brick red, tawny yellow, or grayish color, varying in their width as this part of the body is more or less distended" (Fitch). The claspers at the end of the body are stout, much more so than in *Cecidomyia leguminicola* of the clover.

The egg (Plate I, *a*, enlarged) is very minute, about a fiftieth of an inch long, cylindrical, pointed at each end, the shell shining and transparent, the egg being of a pale red color.

The larva.—After remaining about four days in the egg state, the larva or maggot of the Hessian Fly hatches, and is of the form represented by plate I, fig. *b*, and plate II, fig. B, B*a*, B*b*, B*c*.

The body is soft, smooth, shining, oval cylindrical, beneath a little flattened, and consists of twelve segments besides the head, the latter soft, fleshy, and but slightly separated from the body, with very rudimentary mouth-parts (jaws, etc.). The rings or segments are moderately convex and tolerably distinct from one another; the sutures between the segments in the living larva being indicated by faint transverse lines of a greenish brown hue, according to Fitch, who also states that the mature worm, freshly taken from the roots of the wheat, measures about 0.15 of an inch in length by 0.06 inch in width. Mr. Riley informs us that there are nine pairs of minute spiracles, which appear as yellowish rounded tubercles.

The puparium or flaxseed state (Plate I, Fig. *c*, Plate II, Fig. D).—When fully grown the larva is ready to transform into the third or pupa stage of its transformations. The body turns brown, and finally of a bright chestnut color, while the skin loses all appearance of sutures, and assumes a rude spindle-shaped form, somewhat larger than the larva. This brown case protects the growing pupa within the skin of the latter, finally separating from the cast larva skin, called the pupa-case or *puparium*, and which serves as a sort of cocoon to protect the pale, soft-bodied pupa within. While many two-winged gall-flies are protected by the galls within which they live, others, like the larval wheat and clover-seed midge and the pitch-pine midge, spin true cocoons of silk; and the Hessian-fly is the only species of the genus or family, so far as we know, which assumes this puparium state, being peculiar to the house fly and other species of Muscidæ and allied families, in which the pupa is said to be *coarctate, i. e.*, protected by the cast dried brown skin of the maggot or larva.

From the decided resemblance to a flaxseed, the insect, when at this stage of its transformation, is said to be in the "flaxseed state." It is, however, rather flatter than a flaxseed, being pinched, as it were, at the head end of the body. I have taken the semi-pupa or incompletely-formed pupa from the flaxseed December 1. In this flaxseed state the partly-formed pupa resides during the five winter months of the year.

In early spring, during warm weather in April, the semi-pupa rapidly transforms into the complete pupal or chrysalis state.

The pupa (Plate II, C).—As we have not personally observed the mode in which the fly issues from the pupa and its case, we extract the following account from Fitch. By the time the insect reaches the pupa state the flaxseed case has become quite brittle, breaking asunder transversely if rudely handled, one of its ends slipping off from the insect within, like a thimble from the end of the finger:

"The time for its last transformation having arrived, the pupa, by writhing and bending its body, breaks open its puparium or flaxseed case, crawls from it, and works its way upward within the sheath of the leaf until it comes to some cleft in the now dead, brittle and elastic straw. Through this cleft it crowds its body until all except the tip of the abdomen is protruded into the air, the elasticity of the straw causing it to close together upon the tip of the abdomen sufficiently to hold the pupa in this situation secure from falling to the ground; and, as if to preserve the body in a horizontal position, the feet are slightly separated from the abdomen and directed obliquely downwards, with their tips pressed against the side of the straw, thus curiously serving, like the brace to a beam or to the arm of a signpost, to support the body from inclining downwards. Thus securely fixed and now freely exposed to the drying influence of the atmosphere, the outer membrane of the pupa exhales its moisture, and, as it becomes dried, cracks apart upon the back or upper side of the thorax. Out of this opening the inclosed fly protrudes its head and thorax, more and more, as it gradually withdraws its several members—the antennæ, wings and legs—from the sheaths in which they are respectively enveloped—a process analogous to that of withdrawing the hand and its several fingers from a tight glove—until at length, entirely freed from its pupa-skin, the fly, now perfect in all its parts, usually walks a few steps further up the straw, where it pauses for its body and members to acquire more firmness and strength by the further evaporation of their moisture, after which it is ready to spread its wings and mount into the air."

The Hessian-fly is easily distinguishable in all its stages from the wheat midge, which belongs to a different genus, *Diplosis* (*D. tritici* of Kirby). The wheat midge is orange-colored, has a stouter body, with clear, transparent, and much broader wings, and pale yellow legs, while the larvæ are orange-colored, and live crowded around the wheat grains at the top of the plant; they spin a silk round genuine cocoon, smaller than a mustard seed, which remains in the ground just beneath the surface. So it will be seen that the forms and habits of the two insects are very dissimilar, and they need not be confounded.

HABITS OF THE HESSIAN-FLY.

Having become acquainted with the appearance of this two-winged gall-fly in its different stages, we are now prepared to study its habits; for an intimate knowledge of how it comports itself as an egg, larva, "flaxseed," and perfect winged fly, is absolutely essential to the farmer who would endeavor intelligently to combat this pest.

Number of broods.—The Hessian-fly is double-brooded; the "flaxseeds," or puparia, being found on the winter wheat from late in the autumn, through the winter, until the early part or middle of April. The "flaxseeds" of this brood, from one to about twenty in number, are situated between the stalk and sheathing base of the leaf, at the roots of the young grain, slightly beneath the surface of the ground.

The "flaxseeds" of the second generation affect the wheat in the late spring and summer; but are situated higher up, an inch or two above the surface of the ground, at the lower joints of the straw.

"In the ordinary course of nature, therefore [says Fitch], our crops of winter wheat are liable to two attacks of the Hessian-fly, one generation reared at its roots producing another, which occupies the lower joints of the stocks. Thus the larvæ and pupæ are present in it almost continually from the time the tender young blades appear above the ground in the autumn till the grain ripens and is harvested the next summer. Our spring wheat, on the other hand, can rear but one brood of these insects; they consequently resort to it but little, if at all. Nor can the Hessian-fly sustain itself except in districts where winter wheat is cultivated in which for it to nestle during the autumn and winter."

As a general rule, then, there are two broods of the fly, the first laying their eggs late in April and in May, and the second brood of flies ovipositing* in August, during September, and perhaps a few early in October. Sometimes the flies appear earlier, as Professor Cook, who observed the insect in Michigan, says that "in July and August the flies again issue forth, and the cycle of changes for the year is complete. Thus we see the flies are ready for work in the fall, much before the wheat is ready for them, and may attack a volunteer crop long before the usual crop is above ground or even sown."

A third brood may sometimes appear, as shown by Mr. B. Hulick, of Michigan. According to Professor Cook, Mr. Hulick found the empty "flaxseeds" on volunteer wheat in September. On Professor Cook's expressing some doubt whether the fly had issued, suggesting that it might be the parasite that had eaten the fly and come forth, as the time appeared to him too short, Mr. Hulick at once planted some of the volunteer wheat, still containing the "flaxseed," in close jars, and—

"Saw many of the flies issue; and, more, had eggs laid by these flies on the same wheat in October. Mr. Hulick showed these flies and their eggs to several of his neighbors. In this case the eggs were deposited in July, the flaxseed state assumed in September, from which came a third brood of flies in October. This is certainly a very important matter, as it shows that three broods are possible under favorable conditions; that while the fall flies may, nay generally must, wait till September to deposit eggs, they only want opportunity to breed their mischief much earlier, even in July or August, and thus propagate a late brood of flies, which will be in readiness for even the latest sown wheat. No doubt, too, as in the case of all insects, varying degrees of heat or cold will accelerate or retard the various transformations. (Lecture, etc., p. 9.)"

Mode of egg-laying (see Plate I, *e*, the fly of its natural size engaged in laying its eggs on the leaf of wheat). The mode of oviposition has thus been described by Dr. Herrick:

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*Mr. F. S. Sleeper writes us that he has, on one occasion, seen the Hessian Flies laying their eggs as late as October 26. In February, 1878, during very mild weather, he observed them laying their eggs. See his statements farther on.

"The eggs are laid in the long creases or furrows of the upper surface of the leaves (*i. e.*, the blade or strap-shaped part) of the young wheat plant. While depositing her eggs the insect stands with her head towards the point or extremity of the leaf, and at various distances between the point and where the leaf joins and surrounds the stalk. The number found on a single leaf varies from a single egg up to thirty, or even more."

Professor Cook says that—

"The fly very rarely lays more than three eggs at one time without change of position. She more frequently lays two, and generally but one. In case she lays but one, it takes less than a quarter of a minute, and less than a half a minute to lay three, when they are all laid without a change of position on the part of the fly. After laying she seems to draw in her ovipositor, soon to extend it again, at the same time crowding into it the one, two or three eggs that are next to be laid. She then flies to another leaf, alighting usually, not always, with head towards the end of the leaf. She then appears to wipe the eggs off the jointed ovipositor. She really crowds the egg till the end touches the leaf, when, by friction of the leaf and adhesion of the egg, the latter is held fast while the egg-tube is withdrawn. If the second and third are to be laid she repeats the operation, after which she retracts her ovipositor, restocks it, and in a trice is depositing the fatal germs on another leaf. I say usually on the upper surface, for occasionally eggs are laid on the stalk, and sometimes on the under side of a leaf. I have observed that the fly often makes many unsuccessful efforts to cause the egg to adhere on the outer surface of the leaf before she succeeds. I have seen a fly work thus for two minutes before success crowned her efforts. The fly may thus learn by experience that it is easier to deposit on the inner or upper face of the blade, and so generally choose that surface. We shall see, too, in the sequel, that it is better for the prospective maggot that the egg be placed on the upper surface. In four to ten days, more or less, as the weather is cool or warm, the eggs hatch. (Lecture, p. 7.)"

Mr. C. V. Riley describes as follows the process, in the New York *Tribune:*

"I have very carefully studied the oviposition of the Hessian-fly, closely observing the insect in the act on several occasions; and as accurate observations on this point are not easily made, I herewith transcribe my notes of several years ago:

'Eggs deposited in irregular rows in the longitudinal cavities and depressions of wheat stalks, between the stalk and sheath when this is loose, or on the leaves between the natural ridge or carinæ of the upper surface, this last being the more common habit. Ordinarily, there are from five to ten in a row, but sometimes more. Each egg .02 inch long, cylindrical, rounded at each end, soft, translucent, and pale orange-red in color. Before hatching, the pale sides of the inclosed larva show through the shell. Larva hatched in four days; crawls down leaf to base of sheath, which on young grain is at crown of root. The orange-red color is soon lost, and the larva becomes pale, translucent and plump, sinking more or less into the stalk by the depleting process kept up.'

"In an article in a Saint Louis paper I described, last June, the process of oviposition on the leaves, and my own observations in Missouri accord entirely with those of E. Tilghman recorded in 1820, and E. C. Herrick in 1844, and quoted by Fitch in his essay on the Hessian-fly (Albany, 1846), with the exception that they do not mention the exceptional habit of pushing the eggs between the sheath and the stalk, owing doubtless to the fact that their observations were made solely on the autumn brood of flies ovipositing on the young plants, the habit being more common in the early summer brood when the plants are larger."

Mr. William Strong, of Kalamazoo county, Michigan, thus describes the process, adding some particulars of interest:

"I have seen the wheat plant with many of the maggots at work before there was any stalk for the fly to lay its eggs on, by introducing the extensile abdominal tip under the leaf sheath. Even this fall I have seen this very thing when there was as yet but one shoot from the kernel having but three leaves, the wheat having been sowed not more than three weeks. I have seen these maggots when too small to be seen without the aid of a glass, so low down toward the kernel, which was sowed with a drill, that if the fly had deposited the eggs under the leaf on the stalk, if there had been one there, she would have been obliged to use a spade to dig to get a chance. I am not the only one who believes that the egg is laid on the leaf and hatches there, when the small maggot works its way down inside of the leaf as low as possible. If there should be fifteen or twenty on one leaf (not a large number to find the past year under one leaf), of course as they took their place they would be somewhat in rows, but they, of course, are not the 'eggs placed in the longitudinal grooves of the stalk.'"

"In Solon Robinson's 'Facts for Farmers,' page 214, we read: 'The female deposits her eggs soon after the wheat begins to grow, * * * in the cavities between the little ridges of the blades. In from four to fifteen days the eggs hatch and the diminutive maggots work down into the leaf sheath and there spend the winter.' In the Kalamazoo Telegraph for November 7, this year, are a few lines upon the Hessian-fly by M. B. Batcham, of Ohio. He is too well known to need an introduction at this time. He says: 'In the spring, with the first warm weather, the fly will come forth and deposit its eggs upon the leaf, which will then soon hatch, when the worms, crawling down the leaf, feed upon the stalk, injuring its growth, often causing it to die.' A reason given by some why the fly does not injure red wheat as much as white is because the leaf of the red grows so long and slants down from the shoot so that when the egg hatches the maggot works down the wrong way, falls to the ground, and so many fail to harm the wheat."

A writer in the *Country Gentleman*, Mr Caleb S. Fuller, of Jackson county, Michigan, says:

"The fly commences as soon as the wheat is up an inch high. I placed in a glass fruit jar some stools of wheat which was sown on the 31st of August, and about the 15th of October the fly hatched out of the brown eggs [puparia] which were in the wheat in large

numbers, and was a lively little black fellow about one-eighth of an inch long. Now, if the eggs were deposited about the eighth of September, as that is as soon as the wheat would be large enough for them, it would give them about 37 days to mature so as to fly again, though they might hatch a little sooner or later in the open field. I cannot say as to that; have no certain means of knowing."

The flies of the second brood are, in Southern Michigan, ready to deposit their eggs late in April or early in May "on spring wheat or barley which is sufficiently advanced, in lieu of which they deposit on the wheat again, not on the basal or radical leaves, but on the leaves which will be above the first or second, rarely the third joints." (Cook.)

Habits of the larva.—As soon at the footless larva or maggot hatches, it makes its way down the leaf to the base of the sheath, which, in the young winter wheat, is at the crown of the root.

"Here [says Herrick] it fastens, lengthwise, and head downwards, to the tender stalk, and lives upon the sap. It does not gnaw the stalk, nor does it enter the central cavity thereof; but, as the larva increases in size, it gradually becomes imbedded in the substance of the stalk. After taking its station, the larva moves no more, gradually loses its reddish color and wrinkled appearance, becomes plump and torpid, is at first semi-translucent, and then more and more clouded with intestinal white spots; and when near maturity, the middle of the intestinal parts is of a greenish color. In five or six weeks (varying with the season) the larva begins to turn brown, and soon becomes of a bright chestnut color, bearing some resemblance to a flaxseed."

EFFECT OF THE WORM OR LARVA ON THE WHEAT.

As has been stated, the worm in autumn lies at the sheathing base of the leaves just above the roots, at or near the surface of the soil. It is easy to detect the flaxseed from its large size and chestnut-brown color, by separating the leaf from the stalk of the young wheat in October and November, when the worm has stopped feeding and is incased in its brown sack. Scattered shoots will be found, withered and changed to a light yellow color, and, as Fitch observes, strongly contrasting with the rich green of the vigorous uninjured plants. (See Plate I, representing a healthy stalk on the right and a dwarfed plant on the left, containing three flaxseeds, with the leaves partly withered.) The worms, before assuming the flaxseed state, rest between the leaves and the stalk; their soft fleshy undeveloped mouth-parts do not enable then to gnaw the surface of the plant, but the sap is supposed to be absorbed directly through the walls of the body, and thus they are said to feed by imbibition; this weakens the plant and causes it to become unhealthy and turn yellow and die; moreover, although this point is disputed by Dr. Fitch, the presence of the worms causes the formation of a gall-like swelling or enlargement of the stalk, an abnormal growth of the plant being caused by the slight interruption to the flow of

the sap. Of course, when six or a dozen of these comparatively large flaxseeds are lodged under the base of the leaves the plant turns yellow and dies, as if the roots had been affected.

How a field of winter wheat may be attacked and affected by the Hessian-fly may be seen by reading the following account in the *Cultivator and Country Gentleman:*

"Last fall the appearance of the wheat plant on different fields and locations was very different. On strong and level lands, little injury was shown. Hilly fields, or where there was a ridge or worn point, or where the rock cropped nearer the surface, the wheat appeared injured or dead, as also when sown after spring grain, particularly oats. That the fly either enters the ground or remains in the dry stubble till the size of the wheat affords a lodgment, appears true. As an instance, I note the following facts: An acre of potato ground of 1876 was sown to oats in 1877. It was in fair condition, and a heavy crop was secured. Surrounding this piece of oats on three sides was a meadow, the highway bordering the other side. A good crop of hay was taken in June, and the field was all plowed in July. The after cultivation was the same, putting the field in an excellent condition for the crop. Seeding was through early in September, and in a few days the whole field was nearly covered with the growing wheat, and was very much admired, both for the beautiful green and its superior culture. All at once the wheat on the oat stubble was turning very yellow, in strong contrast to the deep green on the surrounding meadow. In the hollows, on the accumulated wash of ages, the wheat was very large and kept green and growing; while on the sharp points of knolls and hard clay ridges, it was nearly gone. On a piece of new land near by, where never a kernel of grain was grown before, no fly or injury could be seen.

"The appearance of the fly was general, as soon as one or two leaves gave them a lodgment. Owing to the superior warmth and moisture of the entire fall months, wheat sowed on strong land tillered largely. The insects took the first tiller and stuck to it, while two and even four others came out and covered the ground. On poorer parts of the field the plants could not tiller so much, and here the injury showed most. Up to this date the crop has wintered well, a deep layer of snow now keeps insects and wheat alike. About the first of May this entire brood will be ready to deposit their eggs, and they will number millions."

That a field of wheat may recuperate after a favorable winter, and how such a field looks early in the following June, is well brought out by the following extract from the *Prairie Farmer:*

"The early sown wheat, that was badly eaten by the Hessian-fly last fall, but which has been apparently entirely recuperated by the remarkably favorable winter and spring just passed, is more seriously damaged by the insect than many farmers are probably aware of. I visited to-day a thirty-acre field, sowed on the 5th, 6th, and 7th days of September. Early in October it looked very badly—was yellow and showed bare ground in many places, and the plants for a long time seemed to be dwindling and growing smaller. The fine spring, however, brought it out apparently all right. It now stands

five feet four to six inches high, very well headed, and seemingly good for from thirty to thirty-five bushels to the acre. I examined the field carefully in ten places, taking twenty wheat stalks as they stood in the drill row at each place, with this result: Number of stalks examined, 200; number of stalks containing the fly, 134, or two-thirds of the whole. Many of the stalks, however, had only one larva, and these will probably not be much affected. The insects are all of full size, of a chestnut color, and plainly visible in the lowest joint and the one next above—about twice as many were found in the lower joint as in the upper one. This, I suppose, indicates a loss to the crop of from 30 to 50 per cent.

"We had heavy rains on the 8th, 9th and 10th of September, I think, which suspended the operation of seeding till the 12th or after. This seems to be the dividing line, separating the fields badly damaged from those that escaped with little injury. In a part of the same field (potato ground) sowed, near the last of September, with the same kind of wheat, the number of plants examined was 100; affected with fly, 12. In other fields the rate was four to six to the hundred.

"Many fields of Mediterranean are lodging. The Clawson stands well, and by reason of its stiff straw and vigorous growth promises to withstand the ravages of the fly better than the more feebly-growing and weaker-strawed sorts.

"ARVINE C. WALES.."

STARK COUNTY, OHIO, June 7.

Another extract from the *Cultivator and Country Gentleman* bears directly on this important point:

"There is a dispute among good farmers whether wheat injured by the Hessian-fly is irreparably damaged. Mr. F. C. Root thinks it is, as he says when the central stalk is eaten out the plant is either dead or able to make only a feeble growth. If it makes a head, it will perfect only one or two seeds to a plant. Mr. Jesse Dewey qualifies t' is statement thus: *If the land is rich enough*, though the central stalk be injured, the wheat-plant will stool, and from its side roots send up stalks and perfect a fair crop. I have no doubt that both of these excellent farmers are right. On the great majority of fields, the injury to the wheat plant in the fall means the destruction of the crop. When the central plant has been injured, the side shoots have not enough vitality to perfect much seed. Yet there may be land rich enough to make a crop from the second growth, provided the Hessian-fly next spring is not numerous enough to do serious damage. Very much now depends on the character of the coming winter. A season which, under ordinary circumstances, would be favorable, may also save myriads of Hessian-flies. There was much more 'crinkled' wheat last summer than usual, and I have little doubt that the cause is to be found in the heavy mantle of snow, which preserved a greater number than usual of the Hessian-flies through the winter. The wheat crop this fall would have suffered more than usual in any event, but the evil has been greatly aggravated by the warm and generally dry weather after wheat-sowing. We had no killing frost until near November, nor frost of any kind until the middle of October. With frosts in

their usual season, and not sowing too late, there need be little danger from the Hessian-fly. But it is the poorness of the soil which leads farmers, year by year, to sow their wheat earlier in order to get a larger growth. Making the soil richer removes the difficulty by removing its original and principal cause."—W. J. F., Monroe county, N. Y.

INFLUENCE OF THE WEATHER AND FAVORABLE AND UNFAVORABLE SEASONS.

To properly discuss this very important subject would require an intimate knowledge of the meteorological conditions and the relative abundance or rarity of the Hessian-fly during each year since its first appearance in this country in 1776. All that we can say with our present exceedingly imperfect knowledge bears but slightly on this point, and must be considered as simply provisional. We may here quote from the *Cultivator and Country Gentleman* what has been stated by Mr. Riley, in speaking of the condition of the Hessian-fly in 1877:

"The Hessian-fly is rather an insect of moist climates and mild latitudes; and therefore, unlike the Chinch-bug, its multiplication has been favored by the cool and wet summers and autumns of the last three years. While the rainy period, which, as a general statement, may be said to have commenced in May, 1875, and continued to the present date, and during which time there have neither been severe droughts nor continued summer heats, the Chinch-bug has so nearly disappeared that its depredations have been scarcely noticed, the Hessian-fly has developed and thrived, and to the extent that if the weather favors—that is, if from now to harvest it should continue cool and moist or warm and wet—the damage likely to be done to the incoming and the following crop can scarcely be estimated. But if dry weather prevails from this time to harvest, the damage done can hardly be considerable—and if it should turn very dry and hot, all danger from serious depredations from him may be cast out of the account, in measuring the outcome of the crop—since a certain amount of moisture is absolutely necessary for the successful development of the several stages in the growth and progress of this insect scourge. But then Professor Riley warned me against drawing final conclusions on insufficient data, it being quite possible that other forces and causes appearing might bring about a quite different and unexpected result. Nevertheless, there are many reasons for expecting a dry spring, a warm harvest and a hot summer, and comparatively trifling damage to be done by the fly on the wheat harvest of 1878.—W. J. F."

That this fly flourishes best in a rather warm and moist season, is shown by its habits. The flies hover in the spring and autumn over the wheat-fields in countless numbers, especially at morning and evening, avoiding the direct heat of the sun.

PARASITES OF THE HESSIAN-FLY.

How useful, nay indispensable, parasitic insects may prove in keeping the noxious ones within due limits is well illustrated by the case of this fly, for whenever it suddenly disappears from a given

locality, this is usually due to the attacks of its parasites, and especially one Chalcid-fly, the *Semiotellus destructor*, first described by Say.

This is a hymenopterous insect, having four wings and belonging to the same order of insects as the Saw-flies, four-winged Gall-flies (*Cynips*), the larger ichneumons, and the wasps and bees. It is a member of the family *Chalcidæ*. As stated in our *Guide to the Study of Insects*, this is a group of great extent, the species being of small size; they are often of shiny colors, as the name of the principal genus implies, being either bronze or metallic. They also have elbowed antennæ with from six to fourteen joints, and the wings are often deficient in veins. The abdomen is usually smaller, and composed of seven rings in the male, and of six in the female, the latter often having a short but visible ovipositor, a horny tube consisting of three pairs of stout bristles closely united and forming a quite solid tube. Some species are wingless. There are 1,200 species of the family known in Europe, and there are, in all probability, at least 1,000 in the United States. Few of them are over a line in length.

Semiotellus destructor, male. (Plate I. Fig. *i* much enlarged.) The head is transversely oblong, or rather cubical, being rather wider that long, and slightly broader than the thorax when seen from above, being full, somewhat rounded in front, and hollowed out behind next to the thorax. The eyes are dull red, reaching, when seen above, behind the middle of the head. The antennæ are elbowed, and when bent back reach to about the middle of the thorax; they are yellow on the basal half, black beyond. For a further account of the antennæ we quote as follows from Fitch, our specimens being defective in this respect:

"In the male they are of uniform thickness through their entire length. Viewed with a common magnifier they appear ten-jointed, though the last joints are usually so compacted that in the dried specimen the full number cannot be distinctly discerned. When highly magnified two small additional transverse joints may usually be discerned, more or less distinctly, between the second and the third joints, of which the first is rather smaller than the second. The joints are slightly longer than thick, and rather narrower towards their bases. The second joint is longer than the others, its length being about double its thickness. The last joint is more than twice as long as thick, its apex appearing to be cut off transversely, with a minute teat-like process protruded therefrom."

The thorax is about twice as long as broad, and widest at the insertion of the fore-wings; like the head, the crust is coarsely punctured. The fore-wings are broad, triangular, well rounded externally; the subcostal vein is very thick, being strongly marked, and after joining the costal or front edge of the wing for a short distance, just beyond the middle of the wing, is bent in towards the middle of the wing, ending in a knob-like expansion with a slight point extending towards the costal edge of the wing. Fitch represents a slightly marked vein extending to the outer edge of the wing, but this is absent in some specimens. There is an incomplete median and submedian vein, only perceptible under strong magnifying

powers, the base of the median being quite disconnected from the submedian. In one of my specimens there was no vein extending from the subcostal knob to the end of the wing.

The legs are pale straw-yellow, the fore shank-joints (tibiæ) and toe-joints (tarsi) brownish; the third hip-joints (femora) are dusky on the basal half, while the hind terminal tarsal joints are brown. The abdomen is small, black, while the head and thorax are bright metallic green, sometimes blue. The abdomen is also smooth and polished, much flattened, oval, not so wide as the thorax, broad at the end and suddenly pointed (mucronate) at the tip. It has a large yellowish patch on the upper and under side of the second segment. Length of the body 2–2⅘ millimeters (.08–.11 inch).

The female differs in her greater size and rather slenderer body, and the more club-shaped antennæ, the terminal joint being twice as long as thick. The abdomen is as long and as wide as the thorax, ending in a long sharp point, the short but distinct ovipositor extending slightly beyond the tip of the body. There is a slightly marked pale spot above on the second segment. Length 2⅔–3 millimeters (.10–.12 inch).

This parasite was first described by Say, his specimens occurring at or near Philadelphia; it was observed by Herrick in 1839, in Connecticut, and in 1877 we bred it from puparia of the Hessian-fly received from Ohio; and, as stated by Professor Cook, it is sufficiently abundant in Michigan to destroy the Hessian-fly in great numbers, and is probably distributed throughout the Hessian Fly area.

So destructive is this and other parasites to the Hessian-fly that as early as 1841 Herrick claimed that in Connecticut "a very large proportion, probably *more than nine-tenths*, of every generation of the Hessian-fly is destroyed by parasites." This work is mainly, we doubt not, done by the chalcid parasite under consideration. It is to this insect more than to any other means in nature that we owe the general immunity in certain years from the attacks of the Hessian-fly in most wheat regions, and to this cause that during certain years the fly is kept wholly within bounds. Few people, even naturalists, have any adequate idea of the good done by these minute parasites. What was the fact in Connecticut, in 1841, and the few years preceding, has been the case in Michigan, according to Mr. F. S. Sleeper, of Galesburg, Mich., who writes us that the Hessian-fly was nearly exterminated in Kalamazoo county by *Semiotellus destructor*, nearly all the "flaxseeds" in the crop of 1877 having been destroyed by this friendly parasite. He writes us that in the autumn of 1877 he found these parasites in the wheat-fields in countless numbers, and that the perfect Hessian-fly was difficult to find.

No one, since Herrick recorded his observations, has made very careful observations on the habits of these parasites. He states that:

"It pierces the sheath of the stalk (making a hole too small to be detected by a powerful microscope), and deposits an egg in the pupa within. This is chiefly done in June. The perfect insect is evolved in the summer and autumn succeeding, eating its way through the puparium and the sheath of the leaf."

Herrick also states that a second parasite, very similar to the *Semiotellus destructor*, "but with mere rudiments, is sometimes evolved from the pupæ of the Hessian-fly. I am in doubt whether it should be considered a distinct species or only a variety."

A third parasite was reared by Herrick in Connecticut. It is an insect of the tribe *Chalcidiæ*, whose genus he did not determine. Its habits were like those of *Semiotellus*, and wingless females of this species were also found.

A fourth parasite, noticed by Herrick, belongs to Latreille's tribe *Oxyuri*, but the genus was not determined. In habits it agreed with the foregoing parasites, but it was evolved later in the year. Herrick adds that all the parasites mentioned "are likewise evolved in the spring from the Hessian-fly pupæ of the summer previous."

The fifth parasite has quite different habits. It lays its eggs in those of the Hessian-fly. Herrick, its first discoverer, thus speaks of it:

"The insect is abundant in the autumn. I first saw it September 23, 1833, in the act of depositing its eggs in the eggs of the Hessian-fly. From subsequent observations it appears that four or five eggs are laid in a single egg of the Hessian-fly. The latter egg hatches, and the animal advances to the pupa state as usual, but from the puparium no Hessian-fly ever comes forth. This parasite forms within the puparium a silky cocoon of a brownish color."

It is probable that it is the species first discovered by Herrick in Connecticut which Professor Cook has detected ovipositing in the eggs of the Hessian-fly.

"It is black and looks not unlike a tiny gnat. The female feels for the eggs with her antennæ, and when found intrudes the fatal egg, which, I find, takes three-fourths of a minute; full three times as long as it takes the Hessian-fly. The little parasite is much longer, too, in finding the eggs than is the fly in laying them. I find that each egg receives one, two or three of the parasite's eggs. The eggs of these latter are tardy in hatching, so that the larva of the parasite may feed on the maggot of the Hessian-fly, not her eggs. These pupate in the puparium of the fly."

Platygaster error, Fitch?—Having received one of these egg-parasites from Professor Cook, I find it to be so much like the *Platygaster error* of Fitch (Fig. 1) that I refer it to that species, though with a doubt. This is probably also the parasite referred to by Mr. Herrick.

It is shining black; the head is finely punctured, rounded, and slightly broader than long, being about as wide as the thorax. The antennæ are about as long as the head and thorax; they are slender, but apparently a little stouter than in *P. error*, the penultimate joints being a little broader and squarer than he represents (and they are very different from *Platygaster tipulæ*), these joints not being "twice as long as thick," but only $\frac{1}{4}$ to $\frac{1}{3}$ longer*; the terminal joint is long, oval, not so wide as those just be-

* Sixth report on the noxious and other insects of the State of New York, by Asa Fitch, M. D., Pl. 1, fig. 4, *a*, *b*. The figure is from Packard's Guide to the Study of Insects.

hind it, and tapers to a rounded point. The thorax is rounded ovate, but little longer than broad, black, with the scutellum high, rounded and pitted. The abdomen is flattened, oval, twice as long as wide, being a little longer than the thorax, but not quite so wide. The legs are pitchy black on the femora; the tibiæ dull reddish brown, darker towards the end; the tarsi are 5-jointed, dark brown, hairy, with the basal joint reddish at the base. (Fitch says the legs of *P. error* are pitchy black; but in the specimen before me they have a decided reddish tinge.) The wings are veinless, clear transparent, irised. Length 1¼ millimeters, being a little larger than Fitch's *P. error*, which was .05 inch long. I am disposed to refer this specimen to Fitch's species, but should it be found to be quite distinct, it may receive the name *Platygaster herrickii*. It seems to be a genuine *Platygaster*.

Fitch states that *Platygaster error* is seen in company with the wheat midge (*Diplosis tritici*) on the wheat ears in New York and is very numerous some years, but he thinks it doubtful whether it preys upon the midge.

REMEDIES, PREVENTIVE AND GENERAL.

Having become familiar with the habits of this insect, which can be readily observed by farmers, it is not difficult to apply such remedies as the experience of wheat raisers of the past century in different parts of the wheat region of the United States has nearly universally found serviceable. Remembering that the first brood of flies appear in August and continue to hover over the fields until late in September, as if waiting for the fall sown wheat to appear, it is evident that by delaying the date of sowing until after a frost cold enough to kill the flies, they may be circumvented; for if the wheat is sown later than the 20th of September in nearly all the Middle and Northern States, the early frosts will destroy these delicate insects. Late sowing, then, is the most general, important, and easily applied preventive remedy.

Late sowing of most of the wheat seed.—All writers, both entomological and agricultural, concur in recommending this easily applied remedy; that at least a part of the wheat should not be sown until after the 20th of September in the Northern States. The writings of Fitch, Harris and of Cook concur in recommending this course in a district ridden by these pests, even though the wheat is in danger of being injured by the cold autumnal or the winter weather. As the year 1877 was a bad fly year, we quote the following explicit testimony from Professor Cook's pamphlet:

"In all the century's experience in our country with this insect, this has been the most certain and satisfactory method to prevent its ravages. Even more than thirty years ago this measure is spoken of as unanimously sanctioned and the most efficient of remedies. During the past season [1877] I have reliable reports from the following counties: Ottawa, Van Buren, Cass, Kalamazoo, Hillsdale, St. Joseph and Lapeer, and, with few exceptions, it is stated that the early-sown wheat was injured badly, while all sown after September 20 nearly escaped. In traveling through Ohio and

Southern Michigan, I found I could often tell the early from the late-sown wheat for long distances, the former looking like oat-plants after a hard frost, the latter appearing green and healthy. Often in the same field the line of demarkation was very distinct."

The following newspaper extracts bear upon this subject:

"Perhaps the most effectual remedy, or rather preventive, is late sowing. No wheat should be sown in localities where they have already appeared, or in districts adjoining, until September 15, and if it is deferred until the 20th it would be all the better. Repeated rolling is said to destroy some of the larvæ, and burning the stubble, where practicable, would certainly destroy many, and thus prevent so great devastation of the succeeding crop. The great either objection to rolling or burning is that it destroys both friend and foe alike.

"Great care should always be used in destroying all noxious insects lest we also destroy the beneficial ones, the chief of which are the Ichneumon and Chalcis flies. In the counties of Yates, Seneca, Tompkins and Cayuga, where the Hessian-flies have already made their appearance, it would appear wiser to fit the ground perfectly, apply extra fertilizers, and sow late, rather than run any risk or trust to any methods of destruction. If all infested and contiguous districts would sow late enough so that the wheat would not appear above ground before September 25, I believe the fly could be effectually starved out."—[I. P. Roberts, Professor of Agriculture, Cornell University, in the *Rural New Yorker*, September 8, 1877.

"By the attacks of this (the second or spring) brood of worms, the lower joints of wheat are weakened, and as soon as the head is formed, and the growth is heavy, the weakened joints give way and the wheat falls over, or, as it is commonly expressed, it "crinkles." If but few larvæ are at work, there will be some kernels of grain in the heads thus affected, but they will be more or less shrunken. If the insects are plenty, the head seldom "fills," and the field looks as if cattle or something else had passed through it, tangling up and throwing down the straw in every direction.

"There are thus two generations of the Hessian-fly each year, one of which subsists and may be always found at the crown of the roots, and the other at some joint above, and never at the root. If the wheat could be fed off by sheep in the fall, between the time that the eggs are laid and the time of their hatching, this remedy would be perfect. Unfortunately, the wheat is then young, and farmers do not like to risk thus feeding it off. The only remedy left, therefore, is to sow so late that the wheat will not appear above ground before October 1. In this case there is the added risk of winter-killing, because the plants have not time enough to get well rooted before winter. On well-drained, rich land this danger is greatly prevented, and therefore late sowing and thorough farming seem to be the only available means yet discovered to avoid great losses from the ravages of the Hessian-fly. Fortunately the parasitic enemies of the fly increase rapidly, and after a year or two of great losses from this insect its numbers are reduced so much as scarcely to be noticed for some years."—[*Chicago Tribune.*

"I find in several counties of Northern Ohio, where I have traveled of late, a good deal of injury is done to the young wheat by the fly—more than has occurred before for quite a number of years. This is, no doubt, owing to the general practice of sowing wheat early, and the fact that it made a remarkably fine growth during September, when the warm weather was also very favorable for the propagation of the flies. The worms have now gone into the pupa or "flaxseed" state, and if the winter is not too wet or cold for them, it is likely the new brood next spring will prove quite mischievous."—[B., *Cultivator and Country Gentleman.*

"Pennsylvania German farmers have a claim to be considered good zoölogists by their knowledge of animals, from the noble horse down to the insect tribe, that so beset them with labor and loss. The German farmers have been apt and successful in contesting the insect enemies of all crops. The wheat midge, which came in upon us twenty years ago in vast numbers the last of June and the first of July, made his home in the wheat-heads, and nurtured his progeny in the cell prepared for the expectant berry, and appropriated the element nature designed for the perfection of the seed to his own use. This insect for a time literally destroyed the wheat product. Whether it was a scientific discovery that taught the farmers of Lancaster county how to get rid of this destructive insect or not, I never have learned. But I do know that I purchased and carried to farm Lancaster red wheat which I was instructed to sow in August, and in doing so freed my farm from this pest. Continued early sowing proved successful up to the present season, when this practice brought the Hessian-fly, who began at the root of the wheat plant. If the mother fly can get an opportunity to deposit its eggs in the fall season, the larva will stand the winter imbedded in the stalk of wheat (which is a well-tillered plant), and brings forth enough Hessian-fly to destroy the wheat before harvest time. The habit of this Hessian-fly is to bury in the ground with the first frost of the fall season. The Lancaster farmer said to me not long since, we must sow our wheat late this fall if we would avoid the fly. Early-sown wheat was a failure in Pennsylvania to an extent, in my estimation, that reduces this cereal 30 per cent. below our general average. The corn crop over the entire State is not an average one. The oat crop is above the average. The buckwheat crop, generally relied upon in the northern and western portions of our State as one of the paying bread grains, has been very extensively injured by the grasshopper, and cannot be expected to yield more than one-half the usual amount."—[V. E. Piollet's address before the Berks County Agricultural Society, at Reading.

The letter below, from W. B. Billings to the Elmira (N. Y.) Farmer's Club, elicited the appended discussion, as reported in the *Husbandman:*

"I have pursued your club reports with much interest, especially those relating to the Hessian-fly. In an experience of fifteen years of wheat raising I have had about four acres of wheat destroyed by this pest. Eight years ago I sowed a field of ten acres to wheat, four acres of which were gravel, the remaining six acres being of sandy loam, in places so wet that I had to underdrain it. Wheat put in in good condition; land new—had been in cultivation only the two previous years. Now for the

results: During the fall the wheat on the gravelly part started quicker, and when winter set in looked better, the fly doing no appreciable damage to any part of the field; but in the spring, when the wheat had apparently reached about six inches in height, that on the gravel commenced turning yellow at the roots, and from tnat time forward grew thinner and most beautifully less until harvest, when I cut it with a mower and raked it with a wheel-rake, getting about as much straw as farmers generally get from raking a like amount of ordinary wheat stubble. On the remaining part of the field the wheat was good, no noticeable damage being done by the fly. A few years previous to this I knew of a field of spring wheat that was almost entirely destroyed by the Hessian-fly, less wheat being harvested than was sown. It is generally conceded that there are two crops, or hatchings, of the fly during the growth of the wheat; the first in the fall and working until frost comes; the second in the spring, and continuing its depredations until harvest. Late sowing is generally recommended as a preventive. Why should it be so? How do you account for the fly working in wheat growing on warm gravelly land, while that on the moist soil escaped harm? If, as above assumed, there are two crops of insects hatched per year, how does late sowing prevent their depredations? And how can you account for the loss of the spring wheat crop mentioned? Where was the first or small crop hatched, and where did the flies remain until spring? Fresh lime is recommended as preventing the ravages of this pest; can you tell me at what particular time, spring or fall, the lime should be sown to cause the greatest destruction of the fly? Any information from the club on this subject will be thankfully received."

J. S. Van Duzer: "It must not be assumed that the flies which damaged the spring wheat were hatched in that field; the parent flies may have come from a distant field."

President Hoffman: "To my mind, the case is easily explained, so far as the spring wheat is concerned. The fly is migratory. We are told by those who have studied its habits, that it flies over districts as much as twenty miles in breadth, in the course of the year.

"The writer furnishes the explanation of the greater damage done by the fly on his gravelly land. There, the wheat came earlier, and was therefore in condition to receive the deposit of eggs, while the more backward wheat was not. It accords with the theory that late sowing is a measure of prevention against the ravages of the fly. I had, last fall, an illustration of the protection afforded by late sowing. On a small piece I wanted to sow wheat after wheat. Before plowing the stubble the volunteer crop had made a growth of perhaps six inches. In examining one of the plants I found twenty-five of the larvæ. In many others there were a dozen or more. I destroyed this growth by thorough cultivation, and after proper fitting sowed the seed. In the plants that came from the late sowing there were very few larvæ; they came too late to receive the eggs. It is well known that the fly deposits the eggs on the leaves of the wheat, and that its work ceases after some frosts come. The late sowing brings the growth too late for the fly. The fly which

does the mischief in the spring is not hatched in the fall, or at least is not fully developed. It comes out in the spring, lays a new crop of eggs on the leaves of the growing plants, and the insects which hatch from these eggs are those which do the real injury to the wheat. If the time can be ascertained when the eggs are deposited on the leaves, then is the time to sow lime. I do not know that it will prevent the eggs from hatching. My observation of the work done by the fly has taught me one lesson: it is, that no wheat should be sown except on rich land, where the plants will be strong, and therefore able to resist the ravages of the insects."—*Western Farmers' Journal, March 29, 1878.*

It should, however, be borne in mind that late sowing exposes the wheat to the attacks of the wheat-midge (*Diplosis tritici*) and also to the rust, while, also, by late sowing the plants are less advanced, and less fitted to withstand the rigors of the winter.

Early sowing as a remedy.—Still, there are some who adhere to early sowing as on the whole the best thing to do. We insert the following testimony in favor of this procedure:

"In your paper of December 6, 1877, there are three or four articles respecting the Hessian-fly, and they are so different from my observation of the wheat insect, as we call it here, that I send you a few lines respecting the damage done to wheat here. The last harvest was very much injured, in some localities in this State. In the west part of Calhoun county, on sandy land, some pieces were not harvested, and others yielded from five to ten bushels per acre. In this part of Jackson county, wheat did not suffer so much; some fields, on bur-oak soil, yielded as high as thirty-five bushels per acre, of the Clawson variety.

"The fly commences as soon as the wheat is up an inch high. I placed in a glass fruit-jar some stools of wheat, which were sown on the 31st of August, and about the 15th of October the fly hatched out of the brown eggs which were in the wheat in large numbers, and was a lively little black fellow about one-eighth of an inch long. Now, if the eggs were deposited about the 8th of September, as that is as soon as the wheat would be large enough for them, it would give them about thirty-seven days to mature so as to fly again,—though they might hatch a little sooner or later, in the open field. I cannot say as to that, having no certain means of knowing. Now, if we wait till the 1st of October to seed, we will be just in time for the first brood that comes out in the fall to deposit their eggs in the late sowing, which was the case hereabouts. Fields sown on the 25th of September, 1876, suffered more than that sowed on the 25th of August, the same year, not three miles apart; the latter giving a good crop and the former a very light one.

"Now, my observation as well as practice is, that the earliest seeding is the best every time. There are a few farmers in the country who invariably sow early—say as early as the 25th of August—and they hardly ever fail of a good crop. There may be a difference in varieties in resisting the ravages of the fly, and I presume there is. The Tappahannock suffered very much more than the Clawson in adjoining fields, on the same farms, and sowed about the same time. I venture the suggestion that we all sow our wheat earlier—say on the 20th of August, or soon after—as farmers used

to do fifty years ago, so that our wheat will get a strong root and a large top to go into the winter with. I hope this suggestion will stir up some scientific man, like Professor Riley of Missouri, to investigate the habits of the fly as thoroughly as he has the locust or the Colorado Potato-beetle, for I think the country has suffered quite as much from the Hessian-fly as from all other pests put together. If this brings out the desired information, I shall be well paid for this my first contribution to your valuable paper, which I have read with great pleasure for the last ten years.

CALEB T. FULLER."

JACKSON COUNTY, MICHIGAN.

"In reply to your request for information in regard to the Hessian-fly, I will state that only a few of the earliest sown pieces are affected in this and the adjoining county of Trimble. Wheat in general looks remarkably well, has tillered finely, and there is at least 15 per cent. more than an average acreage sown.

S. E. HAMPTON."

CARROLL COUNTY, KENTUCKY.

—[*Cultivator and Country Gentleman.*

We may, then, conclude that, on the whole, late sowing is the best general remedy, but still a part of the wheat should be sown early as a decoy to draw off the flies and induce them to lay their eggs in the early-sown grain, that the later sown portion may escape their attacks, and then farmers should plow under and resow the fields of early grain. Hence we indorse the following excellent advice, which was first suggested by Dr. Fitch, and reiterated by Professor Cook, as follows:

"Let all, without exception, sow a narrow strip about each field, to be sown early in September, or even in August. From the fact that the flies are already in waiting, that the outer edge of a field is almost always the most injured, except that the field grew wheat that nourished flies the preceding year, and that such fields suffer most, one may expect this early-sown narrow rim to receive nearly all the eggs. Leave the balance of the field till we feel it is dangerous to wait longer, at least till after the middle of September, then sow it, after which plow deeply under the early-sown strip, that is if it is stocked with insects, which may be easily determined by examination, and resow it. We should thus kill two birds with one stone—save our crops, and destroy the pest."

Advantage of high culture.—Many farmers advocate high culture, sowing a less breadth of wheat, and cultivating the ground, using fertilizers. This is all important, as the stronger and more luxuriant the growth of the young wheat, the better able will it be to withstand the weakening effects of the maggots; while high culture will carry a partly infested field of wheat through, when the same grain grown on a poorer soil would succumb. The value, then, of good farming, conducted on scientific principles, the forcing of the plant by fertilizers, and the rotation of crops, is so self-evident that we need devote no more space to this subject, except to add the following remarks by practical farmers:

"It is claimed by some that certain varieties of wheat are less liable to the attacks of the Hessian-fly, and entire exemption has been claimed for some. I am satisfied from experience that these claims are partially fallacious. There is no wheat which the fly will not injure under favorable conditions for its working. The supposed exemption is due to the fact, that when a weak-growing and strong-growing variety are sown side by side, the fly leaves the latter for the former. Whatever makes the wheat plant vigorous, helps to repel the attacks of all insect enemies. If the red sorts are less liable to injury, it is because their thicker and ranker leaves keep the plant too moist for the eggs and larvæ. I have seen the same result from the use of superphospate, gypsum, salt, and in fact any manure which causes vigorous growth, with dampness. Coarse manure sometimes seems to favor the insect, but only, I imagine, when the weather is so dry that its coarse strawy substance is really more dry than the ground. Wherever the soil is moist, and wheat makes a rapid growth, the fly will do least damage. I shall take advantage of this fact, this fall, in fertilizing my wheat more liberally than ever before, using two hundred, or perhaps more pounds, of phosphate per acre, besides gypsum and salt to dilute it. If I can get a vigorous growth of wheat from the start, there will be less to fear from the fly. This liberal manuring will also enable me to defer sowing till later than would otherwise be safe.

"Rolling and compacting the ground is very important as a means of keeping it moist. I shall not roll immediately after sowing, but wait until the wheat is up, when, if there is a dry time with no frosts to keep back the fly, I shall roll the ground with the hope that the roller will destroy at least some of the eggs which the fly may have laid. W. J. F."

MONROE COUNTY, NEW YORK.

—[*Cultivator and Country Gentleman.*

In the rapidly increasing practice of extra manuring and cultivation of wheat, as by drilling and hoeing, it is found in very many cases that the Hessian-fly and other insects are far less troublesome than on the wheat fields where only ordinary cultivation is practiced. It frequently occurs, too, that superior cultivation permits of earlier sowing in the fall; the extra growth more than offsetting the damage done by the insects, to avoid which most farmers now are obliged to resort to late planting. Several examples are cited when drilled and cultivated fields, grown beside ordinary broadcast-sown and lightly-manured fields, with results wholly in favor of the former, the Hessian-fly greatly damaging if not totally destroying the latter, while the cultivated fields escaped almost unharmed.—[*Cultivator and Country Gentleman.*

Pasturing with sheep.—Many farmers practice pasturing wheat fields with sheep or cattle; for it it is claimed that if the wheat is strong enough by the middle or end of November to bear it, enough of the larvæ or flaxseeds may thus be destroyed to save the wheat and prevent the necessity of plowing it in. This is a rather rude, uncertain remedy, but can be carried on with more or less success in the Middle States. We give the opinions of those who have found pasturing successful.

From Mr. E. A. Hickman, of Independence. Mo., we obtain the following information:

In reply to your inquiry on the subject of the Hessian-fly, I will state that I have made some inquiry of our best wheat-raisers, and they report as follows: First, the wheat-midge is not found in our State, hence is not further alluded to. A. L. H. Crenshaw, now an old wheat-raiser and quite successful, says he breaks up his ground in July, and lets it lie till September, then harrows it into good planting condition and lets it remain until after a *killing frost*, which is usually from the 25th of September to the 5th of October, then he puts in the seed by drilling. He has never lost a crop or had one injured by the fly.

G. W. Compton is a successful raiser; he breaks up in July, and by the 1st of September sows his wheat immediately; and as soon as the wheat is up and of sufficient height, he turns sheep and other stock on it to keep it eaten down so that the fly can not shelter under its leaves. This has protected his crop until the fall of 1877, when the rains favored the breaking up of the ground, and the planting and growing of the wheat to such an extent that the stock could not graze it down. Its rankness protected the fly, and its abundance nearly destroyed his crops. He attributes his failure to the fact that his crop was not grazed sufficiently close.

Mr. James Lobb sowed early in September, 1878—a fine growing season; brought up a luxuriant and vigorous stand; no pasturing was applied either in fall or spring, and the crop only yielded about four bushels per acre, the balance being destroyed by the fly. This was adjoining a field that produced a fine crop, but cultivated to thwart the fly.

Two other successful men say they have followed the advice of an old settler, who told them to have everything ready, but never sow until after a *killing frost*, and they never suffer from that enemy.

Mr. Robert McNeilly, of Charlotte, Dickson county, Tenn., writes us that "the best preventive found here is to pasture the wheat close in the winter with sheep."

We also reprint the following newspaper articles:

"Another error is that pasturing will do no good. If sheep enough are turned in to eat the wheat down close before the eggs hatch, after being laid, very much good will result. This is an old remedy, and has proved very effectual in many instances. It is now too late to employ it, as the eggs are mostly hatched. During the fine weather of this fall, so far, very few days only were required to hatch the eggs, after which nothing could be done. Very few eggs are placed too close to the ground to escape the teeth of sheep, and if enough of these animals could be turned on to eat the wheat off within three days after the flies appeared, very little damage would result. Frost now will not do much good except with fields that have been sown late, where the blades have not grown large enough to attract the fly. The destruction of the entire crop does not follow the appearance of the fly always. Unless very badly infested, if the soil is rich and the season favorable, a fair crop may result in spite of the fly. Of course, the crop is always injured to some

extent. The best remedy, after the larvæ have hatched and found security in the crown of the plant, is to stimulate the ground as much as possible by the application of fertilizers.

"We mentioned in last week's issue that the Hessian-fly appeared in Pennsylvania, as well as in Canada and other sections, last year.

"It appears that the practice of early sowing has lately increased so much in Pennsylvania as to furnish everywhere the young winter wheat at exactly the time when the Hessian-fly is laying its eggs. This probably has a good deal to do with the trouble in Canada also. And yet the evils of late sowing are so great that most farmers would prefer to risk the Hessians. A correspondent of the Germantown Telegraph, speaking from experience,—for he says that he has never known his system to fail both to destroy the fly and to greatly benefit the crop—gives a useful hint. He says that if the land is strong, the eggs of the fly may all be destroyed and the crop greatly benefited it this manner: After frosts cease in the spring, and the grain is beginning to grow rapidly, and the ground has become so dry that tramping will not injure the crop, pasture off the grain down to the crown of the plants with sheep. This will remove all the eggs, and it will cause the plants to tiller profusely, often five to seven to one, and, all starting together, will each enjoy equal facilities for growth and maturity, and the crop will be greatly improved and increased. If the soil lacks fertility, it is well to apply a proper amount of a proper fertilizer when the sheep are removed. If no salt has been applied to the land, no application will be more likely to pay so well as this, at the rate of twelve to twenty bushels per acre. This is well worth trying."—[*Canada Farmer.*

Sowing of hardy varieties of wheat.—When the stalks and leaves of certain varieties of wheat are tough and hard, the stems coarse and silicious, and the plants "tiller" or throw out secondary shoots in a vigorous way, such varieties are naturally the most fly-proof and should be selected for sowing as winter wheat, while the less hardy and vigorous kinds should be sown when the attacks of the Hessian-fly are not to be expected.

Of the different varieties of "fly-proof" wheat, the Underhill variety has for nearly a century been highly recommended. As Fitch remarks, its fly-proof qualities were supposed by many to be due to the hardness or solidity of its straw. The fly laid its eggs freely upon the leaves, but it was seldom, if ever, materially injured by it. It is a bearded white chaff, with a plump yellow berry, requiring to be thoroughly dried before grinding, and then producing flour in quantity and quality equal to the best of the other varieties.

The Mediterranean wheat is, in the Middle States, in high repute for its fly-proof and hardy nature, recovering better than other varieties from the attacks of the fly. A correspondent in Charlotte, Tenn., writes us that "the Mediterranean, Red Chaff and Red May, are less liable to be damaged by the fly than any we have tried." Fitch says the Mediterranean wheat is a slight Red Chaff, having a long, stiff beard, a long, red and very flinty berry, and ripens about ten days earlier than other varieties. In Central New York, the Lancaster, a red variety, is strongly urged.

In Michigan, the Clawson is apparently the favorite wheat, on account of its "fly-proof" qualities. As stated by Professor Cook—

"The fact that last summer (1876), as well as this, when Diehl and Clawson were sown side by side, Clawson was comparatively free from insects, and, as stated by Mr. Rowe, did not break down in summer, seems to show that it is more exempt from attack. It would seem that the insects have a preference, but will accept plain fare rather than starve or fail to produce. It also seems clear that Clawson, Lancaster, and the red varieties will stand attacks with far less damage, owing to their vigor and greater tendency to sprout."

He then gives the following advice:

"If wheat must be sown early, so long as the Hessian-fly remains a pest, by all means sow Fultz or other varieties of red wheat, or, better still, Clawson. But if we act more wisely still, and set the trap of an early-sown strip, let this be sown to Diehl, the better to attract the flies, and then, when we sow the balance of our field, two or three weeks later, sow Clawson or other rapid, vigorous growing varieties, which not only resists attacks better, but survive better when attacked. Lastly, if the early-sown area is harboring the pests, convert it into an insect cemetery, using the insects to fertilize a still further crop of Clawson."

Mr. W. L. Devereux, of Clyde, N. Y., gives us his experience with the fly and the best varieties to sow:

"Now, concerning the fly: It is the least to be feared of all the injurious insects of the United States. I am situated in or just north of the starting of the *Cecidomyia destructor* in this last crusade on wheat, which is Seneca and Tompkins counties, New York, between Cayuga and Seneca Lakes. This section is also where the *Clawson* wheat originated, and I hold that the Clawson has been the propagator of the fly in this last spread. Perhaps the Soules helped the spread prior to this.

"To my knowledge, there isn't a single instance of a field of Lancaster being injured by the larvæ of the fly. Indeed, I never could find a single larva or pupa in a field of Lancaster. It is the kind which farmers have sown almost entirely throughout this section this year. It does well, and, although a red wheat, it now commands as high if not higher price than Clawson.

"I would particularly impress upon you the fact that we think the fly cannot be found on Lancaster wheat. It is a variety which is extremely tough and hardy, having that green color which farmers call "black," while the Clawson and similar wheats have a green color which is very often yellow. The Lancaster—to strongly indicate its toughness—is said to grow readily under water or on a rock. I have no personal motives in writing thus of the Lancaster wheat; I only want to indicate that it is too tough fiber for the Hessian-fly to live on. It is nearly like or is the *Blue-stem wheat.*

"Professor Cook ranks the Clawson as being less injured by the fly than the Lancaster, but I think the latter is absolutely free from the fly, while the Clawson is literally eaten up alive by the fly."

Mr. Devereaux afterwards wrote as follows, under date of October 29, 1879:

"The Hessian-fly has not destroyed wheat to any great extent this year. However, all white wheat suffered from the attacks of the fly, but still not to the extent it did last year. Red wheat has never been attacked (*vide* my article in *Rural New Yorker*, June 15, 1878). The principal bearded red wheat sown in this locality is called the Lancaster. An amber wheat called Fultz, a bald wheat, seems to be proof against the fly. Mold's red wheat (bald) is also not attacked. But the Clawson (white), so extensively sown here and elsewhere, was most severely attacked in 1877, very badly in 1878, and this year it was thought to be free from the fly, but when harvest came it was noticably short, many heads unfilled, many stunted in their height. At this date of writing every piece of Clawson sown this fall is being ravaged (however, there are only a few pieces of Clawson for miles around here), the Lancaster, as heretofore, remaining uninjured.

"I notice after harvest long stubbles and straws of wheat in field and barn-yard, which have many little pin-holes from which the imago Cecidomyia escaped. Barley was damaged to an enormous extent last year, whole fields having nearly every straw so badly damaged that they would break off readily by passing through with the horse-rake, throwing it into winrows. This year barley was not hurt much.

"Now, wasn't the great spread of the Hessian-fly, which occurred many years ago, brought about by that extensively sown wheat, the *Soules*, which was a very similar wheat to the Clawson, which brought the fly this time? Or rather, each kind of these wheats, by their tender foliage and loose culms, allowed the rapid propagation of the fly, being their favorite variety of wheat. We may also add the fact that these wheats were popular among the farmers everywhere; thus whole wheat districts were sown entirely to this wheat, bringing forth countless numbers of the Hessian-fly to every acre. In the former spread of the fly, farmers entirely desisted from raising wheat, or resorted to red or Mediterranean wheat, and so the pests can be driven back now to their less prosperous plants by the sowing of Lancaster and similar wheats."

In conclusion, we may urge that whatever kind of wheat is used, much more depends on a rich soil. a vigorous growth, and careful cultivation, all of which tend to make the stalk stouter, the growth a few days earlier, than the choice of particular varieties.

SPECIAL REMEDIES.

Under this head belong the use of lime, dusted on the young wheat, rolling, deep plowing, burning the stubble after harvest, &c. Such special remedies as these are of little use as compared with careful preparation of the ground and late sowing, and some of them actually do more harm than good, as we shall see further on.

Application of lime to kill the maggot or larvæ.—It has been frequently recommended to spread fine lime, soot, or salt upon the young wheat so as to kill the young larvæ. As a sample of such treatment, which at least can do no harm, we extract the following statement from the *Kansas Farmer:*

The farmer who recommends the remedy is a Virginian, and he writes to a local paper as follows:

"I hear there is much 'fly' in the wheat that was sown early this fall. To correct this evil I offer the following remedy, which I and others have successfully tested for a good many seasons: Sow of air-slacked or water-slacked lime one or two bushels per acre broadcast over the wheat in the early morning on the dew, or over night on a clear evening, when there is reason to expect dew or frost. As it dissolves it will form a lye which will follow the leaf towards the root and destroy the chrysalis of the fly near that point.

"The sower must always sow with the wind, else the lime will be blown back in his face and eyes and on his clothes. And he must grease his hands, face and nostrils with lard, which renders contact with the lime innocuous. If two or more sow they should sow *en echelon*, at such a distance that the rear shall cast no lime on the front. A very good but not indispensable plan is to use tea scoops—diminutive sugar scoops—that will hold a double handfull. It enables one better to take up and measure the quantity to be applied. This is an application so simple and cheap as to discredit it with the many who are often looking to be told 'some great thing.' I can only say that I know it to be effectual as a remedy, and that in no case can it do harm."

It is evident that such remedies as these should be applied before the insect transforms into the flaxseed state, as the hard, dense pupa case is impervious to ordinary appliances such as would kill the maggots.

Rolling the ground to kill the larvæ and flaxseeds.—Practical men advise rolling the ground both to keep it moist and in order to destroy the eggs, larvæ, and some of the flaxseeds. This may be in some cases worth trying, but we should think that full as much injury would be done to the wheat plants as to the minute larvæ and eggs upon them.

Cutting the grain close to the ground.—This has been sometimes practiced. A writer in the Ohio Farmer makes the following statement in favor of this plan:

E. C. Green, Medina County, Ohio, writes: "The Hessian-fly appeared in this vicinity, but has done but little damage. The wheat commenced to fall over before it was cut, and the eggs or larvæ were found above the first or second joint. The damage on five acres of wheat was probably five or six bushels. By reaping low and raking the stubble was all saved."

A serious objection to reaping low is that many insects of the summer brood in the flaxseed state are, as Mr. S. S. Rathvon claims, carried to the barn or stack, beyond the reach of remedy. From the straw thus harvested the fly would emerge before it was threshed, "and might even pass through a machine without injury." In this manner the fly has possibly been distributed through different sections of the country.

Burning the stubble.—Although this remedy has been advocated, it will be seen to be worse than useless when we reflect that after all the artificial means taken to reduce the number of the Hessian-fly, nature's method of checking its undue increase is far more important and thorough-going; we refer to the diffusion and multi-

plication of the insect-parasites. As previously stated, most probably nine-tenths of the young Hessian-flies are destroyed in the larva or pupa state by the parasites already described. For the most part these parasites live in the flaxseeds contained in the straw, and appear in spring. Now, to burn the stubble in the autumn or early spring is simply to destroy these useful parasites, the best friends of the farmer. We do not hesitate to urge that the straw be untouched. On the contrary, the parasites should be gathered and bred in numbers; and we believe that practical entomologists should bend all their energies towards clearing up the subject of rearing and multiplying these insect hosts. Much knowledge and practical skill is needed in this direction, as occasionally by disseminating the parasites their noxious hosts may increase and be distributed; but knowing, as we do, how many more of the parasites are in many cases bred than the insects on which they prey, it seems safe and reasonable to advise not only not burning the stubble, but letting it stand, so that the parasites may finish their transformations, become fledged, and ready, when the eggs and larvæ of the Hessian-fly are upon or in the young wheat, to destroy them.

It is a matter of fact that in years when the Hessian-fly is specially abundant and destructive, similar seasons are highly favorably to the corresponding increase in the number of their insects or ichneumon parasites; they do their work so effectively that the few following years the numbers of Hessian-flies are greatly reduced. It is, then, to these parasites that we are indebted for the years of immunity from the attacks of the Hessian-fly, as much as to favorable or unfavorable weather, and this leads us to consider the apparent *periodicity* in the years of abundance and scarcity of the Hessian-fly.

PERIODICITY IN THE ABUNDANCE AND SCARCITY OF THE HESSIAN-FLY.

The following tabular view, though constructed from very scanty and often misleading data, may throw some light on this subject. All insects, especially the more noxious ones, those which fall under common observation, such as the Locust, Cotton-worm, Army-worm, Chinch-bug, and the like, have their years of undue numerical increase and of unusual scarcity. This periodicity is, without doubt, partly owing to the influence of the weather, of favorable and unfavorable seasons, and partly, in most cases, to the absence or abundance of the insect parasites, although the latter cause is largely influenced by climatic agencies.

The table has been drawn up from the reports of Fitch, Hind, Cook, and the Agricultural Department at Washington, and from different newspapers, as well as from private correspondence. The record, as therein presented, is very imperfect, but still it is sufficient to show the periodicity in the return of periods when the Hessian-fly has been sufficiently abundant to ravage wheat fields and excite apprehension and alarm. Without much doubt, in the different States mentioned, especially in the Middle States, the insect is tolerably abundant nearly every year, but few seasons occurring when after a careful search by experts the fly would not be found.

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Missouri	Arkansas	Kansas	Texas	Vermont	Maine	Canada
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						1816
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1877		**1877**				
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1879						

CHRONOLOGICAL TABLE OF HESSIAN-

	New York	New Jersey	Pennsylvania	Delaware	Maryland	Virginia	West Virginia	Connecticut	North Carolina	South Carolina	Ohio	Indiana	Illinois
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1836		1836	1836		1836	1836							
								1837					
1840			1840		1840	1840		1840	1840		1840		
1841			1841		1841	1841					1841		
1842			**1842**		1842	1842					1842		
1843			1843		1843	1843					1843		
1844			**1844**		1844						**1844**	**1844**	**1844**
1845			**1845**		**1845**						1845		1845
1846			**1846**		**1846**	1846					1846		**1846**
1847												1847	1847
1849											1849		
			1850			1850					1850	1850	
			1851			1851						1851	
						1852							
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1854			1854										
												1861	1861
				1866	1866						1866		
												1870	
1871	1871		1871		1871	1871	1871		1881	1871	1871	**1871**	**1871**
	1872		1872		1872	1872	1872		1872		1872	**1872**	**1872**
	1873			1873	1873	1873	1873					**1873**	1873
			1874		1874						1874		
											1875		1875
			1876		1876	**1876**			1876		1876	1876	
1877			**1877**						1877		**1877**	**1877**	**1877**
1878									1878		1878		1878
1879				1879					1879		1879		1879

*Appeared west of

FLY YEARS, SO FAR AS RECORDED.

Michigan	Wisconsin	Iowa	Minnesota	Georgia	Tennessee	Kentucky	Missouri	Arkansas	Kansas	Texas	Vermont	Maine	Canada
													1815
													1816
1843													
1844	1844	1844											
1845				1845									
	1846	1846		1846									1846
1847	1847												1847
1848													
1849													
18.0											1850		
											1852	1852	
1854		1854										1854	
		1860	1860										
1862													
1863													
					1868								
					1869		1869						
					1870	1870	1870						
1871			1871	1871	1871	1871	**1871**		1871				
1872					1872		1872	1872	1872				
						1873	1873						
1874					1874		1874	1874					
					1875		1875						
1876	**1876**	1876	**1876**	**1876**	**1876**		**1876**	1876	**1876**	**1876**			
1877					1877		**1877**						
1878					**1878**		1878						
1879					1879								

Alleghany Mountains.

As the recorded facts indicate, within about ninety years there have been, in the Atlantic and Middle States, six periods of unusual abundance, namely, centering about the years 1790, 1817, 1844-'45, 1871-72, and 1876-78. These dates, which generally are inserted in larger type in the table, mark the time of culmination in the degree of abundance and extent of ravages committed, and were preceded by from one to several years of less or greater abundance. After the culmination, or year of greatest abundance, the fly often suddenly disappears. This sudden disappearance is, without doubt, due to the great increase in the number of parasites, while the original increase is probably due to a succession of warm, damp seasons, favorable to the multiplication of the flies. These seasons, when we look at the later Hessian-fly years, such as 1844-55, 1871-72 and 1876-78, when the insect has become wide-spread over the western portion of the wheat area, were evidently areas of similar climatic features common to the Atlantic and Mississippi Valley States. Whether these seasons were warm and moist or not, we have not the means at hand to enable us to form an opinion. We simply at at this time draw attention to the greater desirability of putting on record the amount of correspondence between the meteorological conditions of the seasons of undue increase or unusual scarcity of insect pests, in order that we may be able in the future to make some calculations as to their probable increase or decrease that farmers and gardeners may govern themselves accordingly.

As stated to us by Mr. Thomas, in 1817, the rainfall from Maine to Maryland was slightly above the average, 1.01 per cent. of the mean.

The winter of 1843-44 was the most severe in the West that had been experienced for twenty years; the spring was cold and late; 1844 was very wet over the West, in fact the wettest season known since its settlement, or at least since 1811. This was the year of the great flood in the Mississippi. It was also wet in parts of Virginia and Maryland. But along the sea-coast from Maine to Florida the amount of rainfall was only about .90 per cent. of the mean. In 1845 it was not very wet in any section where wheat was cultivated, the amount along the sea-coast being placed at .95, and this was about the same in the Middle and Northwestern States, varying from .83 to .91 per cent of the mean.

We thus see that the Hessian-fly years, 1817 and 1844, were wet years, periods of more than the average rainfall. Of 1871 we have no records at hand; the spring and summer of 1877 were damp and wet, and, also, appear to have been warmer than the previous year. There thus appears to be a correlation between the seasons of greatest abundance of Hessian-flies and a greater degree of moisture, if not of heat.

DISTRIBUTION OF THE HESSIAN-FLY.

There is little doubt but that this insect was, as stated first by Col. George Morgan, of Prospect, N. J., and afterwards by Mr. Herrick and Dr. Fitch, introduced from Europe. That it was originally a European insect is shown by Mr. Herrick,* who quotes a writer as authority for the statement that the insect was injurious to wheat near Geneva, in May, 1732, and again in May, 1755. It was also detected by Prof. J. D. Dana, in the spring of 1834, who found the larvæ, pupæ, and reared the flies from wheat growing on the island of Minorca. He sent several pupæ and flies from Mahon to Mr. Herrick, who identified them as the Hessian-fly. As he writes, "the Mahonese asserted that the insect had been there from time immemorial, and often did great damage both there and in Spain." Dana also collected the same insect at Naples, and also at Toulon, France. It seems, also, that this insect, or one very closely allied to it, injured the wheat in Hungary at or about the same date as Mr. Dana's visit to Europe, *i. e.* 1834.

Like some other insects introduced from Europe, which there are only slightly injurious, the *Cecidomyia destructor* here became *prepotent, i. e.* multiplied to an unusual degree and became alarmingly prevalent, while in Europe it had not been even described by entomologists, its local ravages having been mostly confined to areas not visited, apparently, by entomological students.

With Herrick, Fitch, and others, we are disposed to credit the belief of Colonel Morgan, that this fly was introduced into America in the straw used for packing, brought by the Hessian troops during the Revolutionary war. These troops were landed on Staten and the west end of Long Island, August, 1776. This, then, was the starting-point from which the fly originated, and it will be interesting to learn how it spread to its present limits, how rapidly, and whether it is at all migratory. Our knowledge on these points will be mainly derived from Fitch's report and subsequent publications.

By reference to the foregoing chronological table of the years when the Hessian-fly was prevalent and injurious, one can comprehend easily the rapidity of distribution and the States successively invaded by it. The States are arranged as nearly as possible in the order in which they were first visited.

In his interesting history of the introduction of the fly into this country, Dr. Fitch shows that in August, 1877, Lord Howe's army, partly on Staten Island and partly at Flatbush, on Long Island, was strongly reinforced by Hessians and Waldeckers, most of whom were from Hesse-Castle, "a district but about a hundred miles dis-

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*In the elements d'Agriculture, par Duhamel du Monceau, Paris, 1771, 2 tomes, 12mo., is a statement from M. de Châteaux, of which the following is a translation: "Our wheat [in the neighborhood of Geneva] has sustained, the present month of May, 1755, an injury from which the grain cultivated by the new husbandry has not been exempt. We found upon it a number of small white worms, which eventually turned to a chestnut color; they fix themselves within the leaves and gnaw the stalks; they are commonly found between the first joint and the root; the stalks on which they fasten grow no more; they become yellow and dry up. We suffered the same injury in 1732, when these insects appeared in the middle of May, and did such damage that the crops were almost annihilated." i, 289. The Hessian-fly and its parasites, by E. C. Herrick, Amer. Jour. Sc., p. 153, 1841. The chestnut-colored worms mentioned by this writer are evidently the "flaxseed" of the Hessian-fly, as no other wheat insect has such a pupa case.

tant from Saxe-Coburg and Saxe-Altenburg, where, as we have already seen, the same insect did much damage to the wheat crops in 1833." *

At Long Island, then, as shown by Dr. Fitch, the Hessian-fly originated, and from this point gradually spread over the wheat area of the colonies, and afterwards of the United States, enlarging its limits of distribution with the corresponding increase in the extent of the wheat area of our country.

It spread more rapidly at first towards the eastward, nearly to the end of Long Island and to Shelter Island. As Havens remarks, "It was first perceived a little before harvest, and appeared to have come from the west end of Long Island in the gradual progress of between twenty and thirty miles a year."

In ten years after its importation into America, it reached Prospect, N. J., about forty miles southwest of Staten Island, and in 1788 it was noticed at Trenton, N. J., and in Philadelphia. Undoubtedly, had there been railroads at that time, with the rapid transit of grain-cars, and bales of hay and straw, it would have spread at least with three times the rapidity of its recorded rate of diffusion.

In 1789 the fly first reached Saratoga, a point situated 200 miles north of its original point of departure. "The insect reached here by a regular progress from the south, coming nearer and nearer each successive year."

It appeared west of the Alleghanies in 1797, though in what state we are unable to learn, while Virginia was invaded in 1801, and North Carolina about the year 1840. Westward its progress brought it to Ohio in 1840, and three years later it was detected in Michigan. In 1844 it was destructive in Ohio, Indiana, Illinois, Michigan, Wisconsin and the eastern border of Iowa, while it was common in the Middle Atlantic States, and became destructive in Northern Georgia in 1845. Meanwhile it had reached Western Canada in 1805. North of Connecticut it seems to have existed only sporadically, and to have maintained only a temporary foothold in Vermont and Maine in 1850–52, and has never been noticed in New Hampshire or in Massachusetts. Minnesota was visited in 1860, and probably earlier.

It must have reached Missouri, Arkansas and Texas long previous to the date given in our table, but probably the year it entered Eastern Kansas (1871–72) is not much posterior to its arrival here, and this is at present its most westernmost limit. No traces of it, so far as we can learn, have been seen in Nebraska.

Does the Hessian-fly migrate?—As regards the so-called migrations of this insect, we would express our disbelief in any such movement from place to place as is involved in the idea of the word migration. The history of the insect simply shows that it has steadily spread from its original point of introduction to new sections of the

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* Sir Joseph Banks drew up a report on this insect for the Privy Council, dated March 22, 1789. He states that "since its first appearance in Long Island it has advanced at the rate of fifteen or twenty miles a year, and neither waters nor mountains have impeded its progress. It was seen crossing the Delaware like a cloud, from the Falls township to Wakefield; had reached Saratoga, 200 miles from its first appearance, infesting the counties of Middlesex, Somerest, Huntington, Morris, Sussex, the neighborhood of Philadelphia, all the wheat counties of Connecticut, etc., committing the most dreadful ravages, attacking wheat, rye, barley and timothy grass. The Americans who have suffered by this insect speak of it in terms of horror."—Dobson's Encyclopedia, viii, art. Hessian-fly.

country, as rapidly as they were settled and wheat became a staple article of production. It is periodically abundant; much as most other noxious insects are, more abundant some years than others; becoming abundant at some localities, and scarce at others. It cannot, therefore, truly be said to "migrate" from one part of a State to another, or from one natural region to another.

Probable limits of the Hessian-fly. — The question naturally arises, whether this pest will ever ever infest the wheat regions of Western Dakota, Montana, Utah, Colorado, and the Pacific States and territories? We believe not,—though aware that such a statement may be hazardous. It was originally an inhabitant of Central and Southern Europe; it has become acclimated in the Eastern Atlantic and Middle States, in the valley of the Upper Saint Lawrence, and in the valley of the Mississippi river; that it can thrive in the elevated, dry Rocky Mountain plateau region, and withstand the cool nights and dry, hot atmosphere of the Far West, seems very doubtful. At least, so slowly has it spread westward, so slight an amount of wheat or straw is transported westward, all produce of this kind going eastward, that we doubt whether, during this century, at least, it will extend west of Kansas and Minnesota, where it has already had a foothold for several years.

SUMMARY OF THE HABITS OF AND REMEDIES AGAINST THE HESSIAN-FLY.

1. There are two broods of the fly; the first laying their eggs on the leaves of the young wheat, from early April till the end of May, the time varying with the latitude and weather; the second brood appearing during August and the early part of September; and laying about thirty eggs, on the leaves of the young winter wheat.

2. The eggs hatch in about four days after they are laid. Several of the maggots or larvæ make their way down to the sheathing base of the leaf, and remain between the base of the leaves and the stem near the roots, causing the stalk to swell and the plant to turn yellow and die. By the end of November, or from thirty to forty days after the wheat is sown, they assume the "flaxseed" state, and may, on removing the lower leaves, be found as little brown, oval, cylindrical, smooth bodies, a little smaller than grains of rice. They remain in the wheat until during warm weather; in April the larva rapidly transforms into the pupa within its flaxseed skin, the fly emerging from the flaxseed case about the end of April. The eggs laid by this first or spring brood of flies soon hatch; the second brood of maggots live but a few weeks, the flaxseed state is soon undergone, and the autumn or second brood of flies appear in August. (In some cases there may be two autumn broods, the earliest August brood giving rise to a third set of flies in September.)

3. There are several destructive ichneumon parasites of the Hessian-fly, whose combined attacks are supposed at times to destroy about nine-tenths of all the flies hatched. Of these, the most important is the Chalcid four-winged fly (*Semiotellus destructor*, Plate 1, fig. i, much enlarged), which infests the flaxseed; and the egg-parasite (*Platygaster*, fig. 1).

4. By sowing a part of the wheat early, and if affected by the fly, plowing and sowing the rest after September 20, the wheat crop may in most cases be saved. It should be remembered that the *first* brood should be thus circumvented or destroyed in order that a second, or spring, brood may not appear.

5. If the wheat be only partially affected, it may be saved by fertilizers and careful cultivation; or a badly damaged field of winter wheat may thus be recuperated in the spring.

6. Pasturing with sheep, and consequent close cropping of the winter wheat in November and early December, may cause many of the eggs, larvæ and flaxseeds to be destroyed; also, rolling the ground may have nearly the same effect.

7. Sowing hardy varieties. The Underhill Mediterranean wheat, and especially the Lancaster variety, which tillers vigorously, should be sown in preference to the slighter, less vigorous kinds in a region much infested by the fly. The early (August) sown wheat might be Diehl; the late sown, Lancaster or Clawson.

8. Of special remedies, the use of lime, soot or salt may be recommended, also raking off the stubble; but too close cutting of the wheat and burning the stubble are of doubtful use, as this destroys the useful parasites as well as the flies.

LIST OF PLANTS

Injured by Insects mentioned in this Report, with the Scientific names of the Species by which each is Injured.

A

Plants.	Insects.
Acer dasycarpum	Agrotis C-nigrum.
Acerates	Danais archippus.
Actinomeris	Lycæna pseudargiolus.
Actinomeris, helianthoides	Militæa tharos.
Actinomeris squarrosa	Eresia texano.
	Phiciodes nycteis.
Ailanthus	Attacus (Samia) cynthia.
Alder	Notodonta concinna.
Althæ rosæ	Pyrameis huntera.
Ambrosia artemisiæfolia	Telesilla cinereola.
	Leucartia acræa.
American Elm (see Elm, American.)	
American Ivy (see Ivy, American.)	
American Larch (see Larch, American.)	
Amorpha	Hyperchiria io.
Ampelopsis quinquefolia (see Virginia creeper.)	
Anise	Papilio asterias.
Antirrhinum canadensis	Jueonia lavinia.
Apocynum androsæmifolium (see Dog-bane)	
Apocynum cinnabinum (see Indian Hemp.)	
Apple	Acrobasis nebulo.
	Acronycta oblinita.
	Agrotis scandens.
	Anisopteryx pometaria.
	Apatela oblinita.
	Carpocapsa pomonella.
	Catocala grynea.
	Clisiocampa americana.
	Clisiocampa sylvatica.
	Cœlodasys unicornis
	Datana ministra.
	Deilephila lineata.
	Gastropacha americano.
	Hyperchiria io.
	Hyphantria textor.
	Lethea gordius.
	Limenitis disippus.
	Loxotænia rosaceana.
Apple	Notodonta concinna.
	Orgyia leucostigma.
	Papilio turnus.
	Parorgyia parallela.
	Phoxtopteris nebeculana.
	Samia cecropia.
	Telea polyphemus.
	Tolpe velleda.
	Tremex columba.
	Xyleutes robiniæ.
Aquilegia canadensis	Nisoniades juvenalis
Aristolochia serpentaria	Papilio philenor.
Aristolochia silphi	Papilio philenor.
Aristolochia tomentosa	Papilio philenor.
Asclepias (see Milkweed.)	
Ash	Attacus prometheus.
	Clisiocampa sylvatica.
	Daremma brontes.
	Deludia jasminearum.
	Halesidota caryæ.
	Hyperchiria io.
Ash, Mountain	Apatela occidentalis.
Ash, Prickly	Chrysophanus thoe.
	Papilio cresphontes.
Aspen	Limenitis arthemis.
Aster	Melitæa tharos.
	Phyciodes harrisii.
	Phyciodes nycteis.
	Phyciodes tharos.

B

Plants.	Insects.
Balm of Gilead	Ægeria tiliæ.
	Hyperchiria io.
Balsam	Hyperchiria io.
Baptisia	Hyperchiria io.
Barberry	Samia cecropia.
Basswood	Attacus polyphemus.
	Datana ministra.
	Limenitis arthemis.
Bean	Ceramica picta.
	Spilosoma virginica.
	Thecla humuli.
Bean, Wild (see *Desmodium dillenii.*)	
Beech	Actias luna.
Beets	Spilosoma virginica.

* NOTE.—To be used as follows: When the reader finds an insect injuring a plant he finds the name of the plant in this list; opposite, in the right hand column, are the names of the species injuring it. Referring to these names in the General Index, he can find where they are described in the report. The scientific names of plants are in italics.

Plants.	Insects.
Bignonia radicans (see Trumpet-creeper.)	
Birch	Actias luna.
	Attacus polychemus.
	Datana ministra.
	Hyperchiria io.
Blackberey	Ægeria rubi.
Black-cherry (see Cherry, black.)	
Black Locust (see Locust, black.)	
Black Walnut (see Walnut, black.)	
Blueberry	Attacus polyphemus
Blue Verrain (see *Verbena hastata.*)	
Bœhmeria (see False nettle.)	
Bœhmeria cylindrica	Pyrameis atalanta.
Buck-wheat	Deilephila lineata.
Burdock	Ceramica picta.
	Plusia precationis.
	Pyrameis cardui.
	Pyrameis huntera.
	Pyrrarctia isabella.
Burdock, Yellow	Ceramica picta.
Bush, Honeysuckle (see Honeysuckle Bush.)	
Butternut	Citheronia regalis.
	Hyphantria textor.
	Selanria juglandis.
	Spilosoma virginica.
Buttonwood	Halesidota tessellaris.
Burr Oak (see Oak, Burr)	

C

Cabbage	Agrotis messoria.
	Mamestra subjuncta.
	Pieris oleracea.
	Pieris protodice.
	Pieris rapæ.
	Plusia brassicæ.
	Spilosoma virginica.
Carraway	Papilio asterias.
Carduus	Pyrameis cardui.
	Pyrameis huntera.
Carrot	Papilio asterias.
Cassia	Callydrias eubule.
	Terias nicippe.
Catalpa	Sphinx catalpæ.
Cedar	Thecla smilacis.
Celery	Papilio asterias.
Celtis occidentalis (see Hackberry).	
Checkerberry	Cœlodasys unicornis
Chelone glabra	Melitæa phæton.
Cherry	Anisopteryx pometaria.
	Apatela occidentalis
	Clisiocampa americana.
	Datana ministra.
	Hyphantria textor.
	Loxotænia rosaceana.
	Papilio turnus.
	Selandria cerasi.
Cherry, Choke (see Choke Cherry).	
Cherry, Wild	Abia cerasi.
	Attacus cecropia.
	Attacus prometheus.
	Thecla titus.
Chestnut	Apatela americana.
	Apatela hamamelis.
Chionanthus	Sphinx kalmiæ.
Choke Cherry	Attacus cecropia.
	Attacus polyphemus
	Hyperchiria io.
Cimicifuga racemosa	Lycæna pseudargiolus.
Circium	Pyrameis cardui.
	Pyrameis huntera.
Cladium effusum (see Saur-grass).	

Plants.	Insects.
Clitoria mariana	Eudamus proteus.
Clover	Arctia isabella.
	Callydrias eubule.
	Colias cæsonia.
	Colias eurytheme.
	Hypena scabra.
	Hyperchiria io.
	Terias lisa.
	Terias nicippe.
Clover Hay	Asopia farinalis.
Cnicus	Pyrameis cardui.
	Pyrameis huntera.
Convolvulus	Spilosoma virginica.
Corn	Acronycta oblinita.
	Agrotis messoria.
	Arctia arge.
	Arctia phalerata.
	Army-worm.
	Ceramica picta.
	Diabrotica longicornis.
	Empretia stimulea.
	Gortyna nitela.
	Heliothis armigera.
	Hyperchiria io.
	Laphygma frugiperda.
	Leucania unipuncta.
	Nephelodes violans.
	Spilosoma virginica.
Cotton	Hyperchiria io.
	Thecla pœas.
Cottonwood	Apatela lepusculina.
	Ægeria asilipennis.
Crab-apple	Loxotænia rosaceana.
	Pyrorgyia parallela.
	Xyleutes robiniæ.
Cranberry	Pristiphora identidem.
Cratægus (see Hawthorn).	
Crotalaria (see Rattlebox).	
Croton capitatum (see Wild Sage).	
Currant	Ægeria tipuliformis.
	Attacus cecropia.
	Gortyna nitela.
	Grapta progne.
	Hyperchiria io.
	Nematocampa filamentaria.
	Nematus ventricosus
	Pristiphora grossulariæ.
	Pristiphora rufipes.
	Spilosoma virginica.
Currant, Wild Black	Ægeria caudata.
Cypress	Agrotis ypsilon.

D

Dandelion	Arctia isabella.
	Plusia precationis.
Desmodium dillenii	Eudamus bathyllus.
Dill	Papilio asterias.
Diplopapus umbellatus	Phyciodes harrisii.
Dogs-bane	Danais archippus.
	Euchaetes collaris.
Dogwood	Hyperchiria io.
	Notodonta concinna.
Dutchman's Pipe	Papilio philenor.

E

Elder	Attacus cecropia.
Elm	Anisopteryx pometaria.

Plants.	Insects.
Elm	Apatela americana.
	Arctia phalerata.
	Attacus polyphemus.
	Grapta comma.
	Grapta interrogationis.
	Halesidota caryæ.
	Hyperchiria io.
	Hyphantria textor.
	Orgyia leucostigma.
	Tolpe velleda.
	Tremex columba.
	Vanessa antiopa.
Elm, American	Cimbex laportei.
	Grapta interrogationis.
	Grapta progne.
Epilobium coloratum	Eudryas unio.
Eupatorium cœlestinum	Theclatitus.
Evening Primrose (see Primrose, Evening).	

F

Fennel, Sweet	Papilio asterias.
Fern, Sweet	Hyperchiria io.
Feverwort	Sesia diffinis.
Fir	Lophyrus abietis.
Fraxinus (see Ash).	
Fraxinus americana	Daremma brontes.
Fraxinus platycarpus	Daremma brontes.
Fraxinus simplicifolia	Daremma brontes.
Fringe-tree	Sphinx kalmiæ.
Frostium (misprint for Triostium).	

G

Geranium	Spilosoma virginica.
Gerardia purpurea	Junonia lavinia.
Gerardia tenuifolia	Junonia lavinia.
Glycine	Eudamus bathyllus.
Gnaphalium	Pyrameis cardui.
	Pyrameis huntera.
Gooseberry	Ægeria tipuliformis.
	Grapta faunus.
	Limenitis ursula.
	Nematus ventricosus
	Pristiphora grossulariæ.
	Pristiphora rufipes.
Gooseberry, wild	Grapta progne.
Grape	Acoloithus americana.
	Acoloithus falsarius.
	Acronycta oblinita.
	Ægeria polistiformis
	Agrotis scandens.
	Alypia octomaculata
	Arctia phalerata.
	Chœrocampa pampinatrix.
	Deilephila chamœnerii.
	Deilephila lineata.
	Eudryas grata.
	Eudryas unio.
	Mamestra distincta.
	Philampelus achemon.
	Philampelus pandorus.
	Psychomorpha epimenis.
	Selandria vitis.
	Thyreus abbottii.
Grass	Agrotis c-nigrum.
	Arctia phalerata.
	Army-worm.
	Chytolita morbidalis
	Ctenucha virginica.
	Drasteria erechtea.
Grass	Leucania phragmitidicola.
	Leucania pseudargyria.
	Leucania unipuncta.
	Neonympha eurytris
	Nephelodes violans.
	Pamphila mystic.
	Pamphila peckius.
	Pamphila phylæus.
	Pamphila sassacus.
	Pseudoglossa lubricallis.
	Satyrus nephele.
	Scepsis fulvicollis.
Ground Cherry	Macrosila carolina.
Gum, sweet	Attacus prometheus.
	Eacles imperialis.

H

Hackberry	Apatela rubricoma.
	Apatura celtis.
	Apatura clyton.
	Apatura herse.
	Sphinx drupiferarum.
Hawthorn	Sesia thysbe.
Hay (see Clover Hay).	
Hazel	Acronycta oblinita.
	Chytolita morbidalis
	Cœlodasys unicornis
	Datana ministra.
	Halesidota tessellaris.
	Hyperchiria io.
	Nematocampa filamentaria.
	Telea polyphemus.
Hedysarum	Eudamus bathyllus.
Helianthus	Pyrameis huntera.
Hickory	Actias luna.
	Attacus polyphemus
	Citheronia regalis.
	Clisiocampa sylvatica.
	Datana ministra.
	Halesidota caryæ.
	Hyphantria textor.
	Nematocampa filamentaria.
	Pyrophila pyramidoides.
	Selandria caryæ.
Holly	Thecla strigosa.
Honey-locust	Attacus polyphemus
Honeysuckle Bush	Sesia diffinis.
Honeysuckle, Tartarian	Abia caprifolii.
	Sesia diffinis.
Hop	Grapta comma.
	Grapta interrogationis.
	Hypena evanidalis.
	Hyperchiria io.
	Pyrameis atalanta.
	Thecla humuli.
Horsechestnut	Loxotæni rosaceana
	Orgyia leucostigma.
	Parorgyia parallela.
Horse-radish	Pieris oleracea.
	Pieris rapæ.

I

Indian corn (see corn).	
Indian hemp	Botis penitalis.
	Euchætes collaris.
Indigo, Wild (see *Baptisia*).	
Ivy, American	Philampelus achemon.

J

Plants.	Insects.
Juniper	Dapsila rutilana.
	Eacles imperialis.

K

Kalmia (see Laurel).
Knotgrass (see *Polygonum aviculare.*)

L

Lappa major	Pyrameis cardui.
	Pyrameis huntera.
Larch	Orgyia leucostigma.
Larch, American	Samia columbia.
Larix americana (see Larch, American).	
Laurel	Sphinx kalmiæ.
Lepidium virginianum (see Pepper Grass).	
Lespedeza	Hyperchiria io.
Lespedeza capitata.	Lycæna comyntas.
Lichens (see Moss on Oaks).	
Lilac	Ægeria syringæ.
	Daremma undulosa.
	Papilio ajax.
	Pyrophila pyramidoides.
	Spilosoma virginica.
	Sphinx chersis.
Lime tree	Grapta interrogationis.
Linden	Apatela americana.
Liquidamber (see Gum, Sweet).	
	Selandria tiliæ.
Locust, Black	Datana ministra.
	Eudamus tityrus.
	Hyperchiria io.
	Xyleutes robiniæ.
Locust, Honey (see Honey Locust).	
Locust, Viscid	Eudamus tityrus.
Lonicera ciliata	Melitæa phæton.
Lupine	Colias eurytheme.
Lupine, Blue	Utetheisa bella.

M

Malvacea	Pyrameis cardui.
Maple	Agrotis c-nigrum.
	Apatela americana.
	Attacus polyphemus
	Eacles imperialis.
	Hyphantria textor.
	Limacodes laticlavia
	Orgyia leucostigma.
	Samia cecropia.
Maple, Silver	Dryocampa rubicunda.
Maple, Soft	Ægeria acerni.
	Dryocampa rubicunda.
Meadow Rue	Calpe canadensis.
Melon	Deilephila lineata.
Milkweed	Danais archippus.
Mint, Mountain	Pholisora catullus.
Monardia (see Mint, Mountain.	
Morning-glory	Microsila cingulata.
Moss (on Oaks)	Hypropepia fucosa.
Mountain Ash (see Ash, Mountain).	
Mustard	Pieris oleracea.
	Pieris protodice.
	Pieris rapæ.
	Plusia brassicæ.

N

Plants.	Insects.
Nettle	Grapta interrogationis.
	Grapta milberti.
Nettle, False	Grapta comma.

O

Oak	Apatela occidentalis
	Attacus polyphemus
	Catocala lineata.
	Clisiocampa sylvatica.
	Datana ministra.
	Dryocampa pellucida.
	Dryocampa senatoria.
	Dryocampa stigma.
	Eacles imperialis.
	Eucronia maia.
	Halesidota tesselaris.
	Hyperchiria io.
	Hyphantria textor.
	Limenetis disippus.
	Orgyia leucostigma.
	Parorgyia clintonis.
	Parorgyia parallela.
	Perophora meisheimerii.
	Pyrophila pyramidoides
	Thecla m-album.
	Thecla titus.
	Tolpe velleda.
	Tortrix fervidana.
	Tremex columba.
	Xyleutes robiniæ.
Oak, Burr	Thecla strigosa.
Oak, Scrub	Limenitis ursula.
Oats	Army-worm.
	Leucania unipuncta.
Oenothera biennis (see Primrose, Evening).	

P

Parsley	Papilio asterias.
Parsnip	Papilio asterias.
Passiflora cœrulæ	Agraulus vanillæ.
Passiflora incarnata	Agraul us vanillæ.
	Euptoieta claudia.
Passion flower	Agraulus vanillæ.
Pawpaw	Papilio ajax.
Pea	Ceramica picta.
	Colias eurytheme.
	Spilosoma virginica.
Peach	Ægeria exitiosa.
	Anisopteryx pometaria.
	Arctia phalerata.
	Clisiocampa sylvatica.
	Prodenia lineatella.
Pear	Ægeria pyri.
	Agrotis c-nigrum.
	Hyphantria textor.
	Orgyia leucostigma.
	Selandria tiliae.
	Tremex columba.
Pepper grass	Arctia phalerata.
Persimmon	Actias luna.
	Citheronia regalis.
Phaseolus perennis	Argotis c-nigrum.
Pine	Lycæna comyntas.
	Eacles imperialis.
	Lophyrus abietis.
	Platycerura furcilla.

Plants.	Insects.
Pine	Thecla niphon.
	Urocerus albicornis.
Pine, white	Lophyrus abbottii.
	Sphinx harrisii.
Pinus palustris	Sphinx coniferarum.
Pinus strobus	(See Pine, White.)
Plantain	Arctia arge.
	Arctia isabella.
	Arctia phalerata.
	Ecpantheria scribonia.
	Melitæa phæton.
	Plusia precationis.
	Spilosoma virginica.
	Acrobasis nebulo.
Plum	Actias luna.
	Ægeria exitiosa.
	Ægeria pictipes.
	Apatela occidentalis.
	Apatela superans.
	Attacus cecropia.
	Attacus cynthia.
	Clisiocampa americana.
	Coelodasys unicornis.
	Limenitis disippus.
	Notodonta concinna.
	Notodonta unicornis.
	Orgyia leucostigma.
	Parorgyia parallela.
	Sphinx drupiferarum.
Plum, Wild	Thecla titus.
Podophyllum	Euptoieta.
Polygonum	(See Smart-weed.)
Polygonum aviculare	Arctia phalerata.
Poplar	Apatela americana.
	Attacus polyphemus
	Clisiocampa sylvatica.
	Gastropacha americana.
	Hyperchiria io.
	Limenetis disippus.
	Smerinthus modestus.
	Vanessa antiopa.
Populus candicans	Ægeria tiliae.
Populus monilifera	Ægeria asilipennis.
Populus tremuloides	Cossus centerensis.
Potato	Gortyna nitela.
Prickly Ash	(See Ash, Prickly.)
Primrose, Evening	Arctia phalerata.
Privet	Daremma undulosa.
Pumpkin	Ægeria cucurbitae.
Purslane	Deilephila leneata.

Q

Quince	Datana ministra.
	Attacus polyphemus

R

Radish	Plusia brassicae.
Ragweed	Leucarctia acræa.
	Telesilla cinereola.
Raspberry	Ægeria rubi.
	Prodenia lineatella.
	Selandria rubi.
Rattle-box	Utetheisa bella.
Ribes floridum	Ægeria caudata.
Robinia pseudacacia	(See Locust, Black.)
Rosa blanda	(See Rose, Wild.)
Rose	Attacus polyphemus
	Clisiocampa sylvatica.
	Empretia stimulea.
	Loxotænia rosaceana.
	Orgyia leucostigma.
Rose	Selandria rosae.
Rose, Wild	Penthina nimbatana

S

Sage, Wild	Paphia glycerium.
Salsify	Prodenia lineatella.
Sassafras	Attacus prometheus.
	Hyperchiria io.
	Papilio troilus.
Saur-grass	Pamphila palatka.
Sedge	Satyridae.
Sedum	Euptoieta claudia.
Senecio	Pyrameis cardui.
	Pyrameis huntera.
Senna	Terias, nicippe.
Smartweed	Acronycta oblinita.
	Arctia phalerata.
	Arsilonche henrici.
	Ceramica picta.
	Chrysophanus americanus.
	Spilosoma virginica.
Smilax	Thecla smilacis.
Snake-root, Virginia	Papilio philenor.
Snowberry	Hyperchiria io.
	Sesia tenuis.
	Sesia thysbe.
Sorrel	Chrysophanus americanus.
	Spilosoma virginica.
Spice bush	Attacus prometheus.
	Papilio troilus.
Spiræa	Eucronia maia.
Spruce	Lophyrus abietis.
	Orgyia leucostigma.
Squash	Ægeria cucurbitæ.
Strawberry	Emphytus maculatus.
	Nematocampa filamentaria.
Sumac	Citheronia regalis.
	Datana ministra.
	Datana perspicua.
Sunflower	Ecpantheria scribonia.
	Spilosoma virginica.
Sunflower, Wild	Gelechia flavocostella.
Swamp Button-bush	(See Button-bush, Swamp.)
Sweet Fennel	(See Fennel, Sweet.)
Sweet Fern	(See Fern, Sweet.)
Sweet Gum	(See Gum, Sweet.)
Sweet potato	Macrosila cingulata.
Sycamore	Attacus polyphemus
	Tremex columba.
Sylibum marianum	Pyrameis cardui.
	Pyrameis huntera.
Symphoricarpus	(See Snowberry.)
Syringæ	(See Lilac.)

T

Tartarian Honeysuckle	(See Honeysuckle, Tartarian.)
Thistle	Pyrameis cardui.
	Pyrameis huntera.
Thorn	Attacus polyphemus
	Datana ministra.
	Datana perspicua.
	Papilio turnus.
Tobacco	Agrotis ypsilon.
	Macrosila carolina.
	Macrosila 5-maculata.
Tomato	Agrotis ypsilon.
	Gortyna nitela.
	Macrosila carolina.
	Macrosila 5-maculata.
Triostium perfoliatum	(See Feverwort.)

Plants.	Insects.
Trumpet creeper	Psychomorpha epimenis.
Tulip-tree	Attacus prometheus.
Turnip	Deilephila lineata.
	Pieris oleracea.
	Pieris rapæ.
	Plusia brassicæ.
U	
Urtica	(See Nettle.)
Urtica dioica	Pyrameis atalanta.
Urtica urens	Pyrameis atalanta.
V	
Vaccinium	Thecla irus.
Verbena	Spilosoma virginica.
Verbena hastata	(See Vervain, Blue.)
Vervain, Blue	Adisophanes miscellus.
	Crambodes talidiformis.
Violet	Argynnis alcestis.
	Argynnis aphrodite.
	Argynnis atlantis.
	Argynnis bellona.
	Argynnis cybele.
	Argynnis diana.
	Argynnis egleis.
	Argynnis idalia.
	Argynnis myrina.
	Euptoieta claudia.
Virginia creeper	Acoloithus falsarius.
	Philampelus achemon.
Virginia creeper	Philampelus pandorus.
	Thyreus abbottii.
Virginia Fringe-tree	(See Fringe-tree.)
Virginia Snake-root	(See Snake-root.)
W	
Walnut	Actias luna.
	Attacus polyphemus
	Citheronia regalis.
	Clisiocampa sylvatica.
	Datana ministra.
	Hyphantria textor.
	Orgyia leucostigma.
Wheat	Army-worm.
	Cecidomyia destructor.
	Hessian-fly.
	Laphygma frugiperda.
	Leucania unipuncta.
	Prodenia commelinæ.
Wintergreen	Notodonta concinna.
Willow	Acronycta oblinita.
	Actius luna.
	Ægeria anthracipennis.
	Attacus polyphemus
	Dolerus arvernsis.
	Ecpantheria scribonia.
	Grapta faunus.
	Halesidota caryæ.
	Hyperchiria io.
	Hyphantria textor.
	Limenitis arthemis.
	Limenitis ursula.
	Nematus salicis-pomum.
	Nematus trilineatus.
	Nematus ventralis.
	Thecla acadica.
	Oryssus affinis.
	Oryssus hæmorrhoidalis.
	Oryssus manurus.
	Samia cecropia.
	Vanessa antiopa.
Willow, Heart-leaved	Euura salicis-ovum.
	Euura orbitalis.
	Euura salicis-gemma.
Willow, Weeping	Nematus trilineatus.
Willow, White	Euura salicicola.
	Nematus ventralis.
Willow-herb	Deilephila chamænerii.
	Eucronia maia.
	Eudryas grata.
	Eudryas unio.
Wooly Aristolochia	(See *Aristolochia tomentosa.*)

INDEX.*

A

PAGE.

Abottii....70, 100
Abbott's Saw-fly.... 70
abdominalis.... 71
Abia caprifolii.... 66
Abia cerasi.... 66
abietis.... 70
acadica.... 93
acerni.... 108
achemon....101, 182
Acoloithus americana.... 112
Acoloithus falsarius.... 112
acræa....115, 170
Acrobasis nebulo.... 157
Acronycta oblinita....170, 131
Actias luna....124, 178
adjuncta.... 136
Adipsophanes micellus.... 180
Ægeria acerni.... 108
anthricipennis.... 109
asilipennis.... 109
caudata.... 108
cucurbitæ.... 107
exitiosa.... 107
pictipes.... 109
polistiformis.... 108
pyri.... 107
rubi.... 108
syringæ.... 109
tiliæ.... 109
tipuliformis....107, 151
ÆGERIDÆ, Synopsis of the.... 106
affinis.... 71
Agraulis vanillæ.... 80
Agrotis annexa.... 136
clandestina.... 135
c-nigrum....132, 184
cupida.... 135
herilis.... 133
lubricans.... 135
messoria.... 134
saucia.... 134
scandens.... 133
subgothica.... 132
tessellata.... 133
tricosa.... 132
ypsilon.... 184
ajax.... 74
Ajax butterfly.... 74
albicornis.... 71
albifrons....40, 120
alcestis.... 82
alope.... 92
Alypia octomaculata....110, 172
Amara angustata.... 41
americana....95, 112, 122, 130, 155, 166
American Maple Moth.... 130
Amputating Brocade Moth.... 137
amyntor.... 102
Analytical Key.... 146
Ancyloxypha numintor.... 96
angustata.... 41
Anisopteryx pometaria.... 148

PAGE.

annexa.... 136
antiopa....35, 163
anthracipennis.... 109
Apatela americana.... 130
hamamelis.... 131
lepusculina.... 130
oblinita.... 131
occidentalis.... 129
rubricoma.... 132
superans.... 131
Apatura celtis.... 88
clyton.... 89
herse.... 89
aphrodite.... 81
archippus....79, 161
Archippus Butterfly.... 79
Arctia acræa.... 115
arge....115, 170
isabella.... 115
phalerata....115, 171
arctica.... 137
arge....115, 170
Argynnis alcestis.... 82
aphrodite.... 81
atlantis.... 82
bellona....83, 183
cybele.... 81
diana.... 81
egleis.... 164
idalia....81, 162
myrina....82, 161
armigera.... 150
Army-worm (*Leuconia unipuncta*).... 5
artificial remedies.... 42
eggs.... 9
hibernation.... 27
larva.... 12
moth.... 18
Natural History and Description.... 7
number of broods.... 27
Past History.... 6
Proper Home.... 33
pupa.... 18
Remedial Agencies.... 36
Term of Life.... 20
Arsilonche henrici.... 171
arthemis.... 88
arvernsis.... 67
asilipennis.... 109
Asopia farinalis.... 157
asterias....74, 173
Asterias Butterfly.... 74
atalanta.... 86
Atalanta Butterfly.... 86
atlantis.... 82
Atrytone hobomok.... 97
Attacus cecropia....126, 177
columbia.... 177
cynthia.... 125
polyphemus....124, 176
prometheus....125, 176
Average Monthly Rainfall in Illinois.... 57

*NOTE.—Generic names commence with a capital; specific with a small letter; family names are in small capitals.

B

PAGE.
bachmanii 80
baroni 163
bathyllus 98
Bathyllus Skipper 98
bella 113
bellona 83, 183
Blackbird 41
Black c-rustic 132
Bobolink 41
BOMBYCIDÆ 113
Botis penitalis 150
brassicæ 140
brontes 102
Butterfly larvæ, Discriptive List of 73

C

Cabbage Butterfly 76
cæsonia 78
calanus 93
calidum 41
caliginosus 41
Callimorpha fulvicosta 113
lecontei 114
Callosamia promethea 125, 176
Callydrias eubule 78
Calosoma calidum 41
esternum 41
scrutator 41
wilcoxii 41
Calpe canadensis 137, 172
canadensis 137, 172
canthus 91
caprifolii 66
cardui 87, 153
carolina 103, 158
Carpocapsa pomonella 151
caryæ 66, 168
Cat logue of Larvæ, Descriptive 60
catalpæ 104, 124
Catocala grynea 183
linella 182
catullus 98
caudata 108
cecropia 126, 177
celtis 88
centerensis 151
Ceramica picta 185
cerasi 66, 67
Ceratomia amyntor 102
Chalcis albifrons 40
chamœnerii 159
chersis 105
Cherry Abia 66
Chœrocampa pampinatrix 103
tersa 159
Chrysophanus amaricana 05
thoe 95
Chytolita morbidalis 138, 182
Cicindela repanda 41
Cimbex laportei 65
cinereola 180
cingulata 104, 158
Citheronia regalis 122, 162
clandestina 135
Clandestine Moth 135
claudia 80
Climbing Rustic 133
clintonis 165
Clisiocampa americana 122, 155
Clisiocampa sylvatica 123
clyton 89
c-nigrum 132, 184
Coelodasys unicornis 147
Coleophora malivorella 156
Colias cæsonia 78
Colias eurytheme 78
Colias philodice 78
collaris 169
columba 71
columbia 177
comma 84, 163
commelinæ 138
comyntas 95
concinna 219
coniferarum 106
Coquillett, D. W 145
Corn Insect, New 44
Cossus centerensis 151
Cotton-wood Dagger 130
Crambodes talidiformis 180
cresphontes 75
Cresphontes Butterfly 75
Crysonhanus americana 95
thoe 95
Ctenucha virginica 170
cucurbitæ 107
cupida 135
Currant Borer 107
cybele 81
cymatophoroides 129
cynthia 125

D

DANAIDÆ 79
Danais archippus 79, 161
Dapsila rutilana 153
versicolor 159
Daremma brontes 102
undulosa 159
Dart, Devastating 137
Gothic 132
Master 133
Perplexing 132
Datana ministra 119, 167
perspicua 119
Debis portlandia 92
Deilephila chamœnerii 159
lineata 160, 159
delaware 96, 174
destructor 210, 211
Devastating Dart 137
Diabrotica longicornis 44, 45
vittata 44
diana 81
diffinis 99, 160
Diludia jasminearum 103
disippus 88, 162
distincta 136
Dolerus arvernsis 67
Dolichonyx oryzivorus 41
Drasteria erechtea 148
drupiferarum 104
Dryocampa pellucida 123
rubicunda 121
senatoria 120, 161
stigma 120

E

Eacles imperialis 120
Ecpantheria scribonia 116
Edema albifrons 129
egleis 164
Elaphrus ruscarius 41
elongatus 41
Emphytus maculatus 68
Empretia stimula 117
ephemeræformis 118
epimenis 111, 172
erechtea 148
Eresia texana 163
error 212
eubule 78
Eucronia maia 127, 164
Euchætes collaris 169
Eudamus bathyllus 98
proteus 154
tityrus 98, 153
Eudryas grata 111, 173
unio 111, 183
Euptoieta claudia 80
European Cabbage Butterfly 77
eurytheme 78

PAGE.
Eurytheme Butterfly 78
eurytris 90, 184
Euura orbitalis 69
salicicola 67
salcis-gemma 69
salcis-ovum 69
evanidalis 148
Exartema fascianatum 163
exitiosa 107
Exorista flavicauda 37
leucaniæ 37
Osten-Sackenii 37
externum 41

F

Fall Army-worm 138
falsarius 112
farinalis 157
fascinatum 153
faunus 84
fervidana 154
Figure 8, Minor Moth 137
filamenta ia 148
Fir-t ee Saw-fly 70
flavicauda 37
flav costella 153
frugiperda 138
fucosa 184
fulvicollis 171
fulvicosta 113
furcilla 168

G

Gastropacha americana 266
Galechla flavocostella 153
gemma 91
glycerium 89
Glyphe viridescens 39
gordius 105
Gortyna nitela 151
Gothic D rt 132
Grape-root Borer 108
Grapta comma 84, 163
faunus 84
in errogationis 84, 165
j-album 85
milberti 85
progne 82
grata 111, 173
grossulariæ 69
grynea 183

H

Hadena arctica 137
devastatrix 137
hæmorrhoidalis 71
Halesidota caryæ 168
tesselaris 116, 168
hamamelis 131
Harpalus calignosus 41
pennsylvanicus 41
harrisii 105, 162
harveyi 86
Hawk Moths 99
Heliothis armigera 150
henricii 171
herilis 133
herse 89
Hessian-fly—by Dr. Packard, A.S. 186
Hibernia tiliaria 149
hobomok 97
Hockeria perpulcra 39
humuli 92
huntera 86, 153
Hunter's Butterfly 86, 153
HYMENOPTERA 63
Hypena evanidalis 148
scabra 148
Hyperchiria io 127, 169
Hyphantrir textor 116, 154
Hypropepia fucosa 184

I

PAGE.
Ichneumon suturalis 41
idalia 81, 162
identidem 69
imperialis 121
interrogationis 81, 164
io 127, 169
irus 94
isabella 115, 169

J

j-album 85
jasminearum 103
juglandis 67
Junonia lavinia 87
juvenalis 07

K

kalmiæ 104

L

Lance, Rustic 133
Laphygma frugiperda 138
laportei 65
Larvæ, Butterflies of 73
Descriptive Catalogue of 60
laticlavia 117
lavinia 87
lecontei 114
LEPIDOPTERA 72
lepusculina 130
Lethia gordius 105
Letter of transmittal 1
Leucania harveyi 186
phragmitidicola 186
pseudargyria 139
unipuncta 5
leucaniæ 36, 37
Leucarctia acræa 170
leucostigma 117, 166
Libythea bachmanii 90
Lilac Borer 109
Limaco es laticlavia 117
Limenetis arthemis 88
disippus 88
ursula 87, 162
Linden Saw-fly 67
lineata 100, 159
lineatella 137
lineella 182
lisa 79
Lisa Butterfly 79
longicornis 44, 45
Lophyrus abbottii 70
abietis 70
Loxotænia rosaceana 153
lubricalis 138, 182
lubricans 135
lucilius 97
luna 124, 178
Lycaena comyntas 95
neglecta 95
pseudargiolus 96
scudderii 96

M

Macrosila carolina 103, 158
cingulata 104, 158
5-maculata 104
maculata 176
maculatus 68
maia 127, 163
m-album 92
malivorella 156
Mamestra adjuncta 136
distincta 136
renigera 137
subjuncta 136
manurus 71

PAGE.
Maple Ægerian 108
Marten, John 99, 106
Master Dart 133
Melitæa baroni 163
nycteis 83
phaeton 83
tharos 83
mellipes 71
melsheimerii 156
Mesochorus vitreus 39
messoria 134
Meteorology 47
Microgaster militaris 38
Middleton, Nettie 73
milberti 85, 164
militaris 37, 38
minimus 40
ministra 119, 167
micellus 180
modestus 159
morbidalis 138, 182
myrina 82, 161
mystic 97

N

nebulo 157
neglecta 96
Nematocampa filamentaria 148
Nematus salicis-pisum 68
salicis-pomum 68
trilineatus 68
ventralis 68
ventrico us 68
Nemoræa leucaniæ 36, 37
Neonympha canthus 91
eurytris 90, 184
gemma 91
sosybius 91
nephele 92, 180
Nephelodes violans 139
nicippe 79
Nicippe Butterfly 97
nimbatana 153
niphon 94
Nisoniades juvenalis 97
lucilius 97
nitela 151
NOCTUIDÆ 128
Notodonta concinna 119
unicornis 181
nubeculana 153
numintor 96
nycteis 83, 165
NYMPHALIDAE 80

O

oblinita 131, 170
occidentalis 132
octomaculata 110, 172
oleracea 77
Ophion purgatus 41
orbitalis 69
Orgyia leucostigma 117, 166
Oryssus affinis 71
hæmorrhoides 71
manurus 71
oryzivorus 41
Owlet Moths 128
osten-sackenii 37

P

Packard, Dr. A. S. 187
palatka 153
Pamphila delaware 94, 174
maculata 176
mystic 97
palatka 153
peckius 178
phylæus 96, 176
sassacus 97

PAGE.
pampinatrix 168
pandorus 101, 175
Paphia glycerium 89
Papilio ajax 74
asterias 74, 173
cresphontes 75
philenor 73, 164
troilus 74
turnus 74, 173
PAPILIONIDAE 73
parallella 165
Parorgyia clintonis 145
parallella 166
Pasimachus elongatus 41
Peach-tree Borer 147
Pear-tree Borer 147
peckius 178
pellucida 121
penitalis 154
pennsylvanicus 41
Penthina nimbatana 153
Perophora melsheimèrii 156
Perplexing Dart 132
perpulcra 69
perspicua 119
Pezomachus minimus 40
phæton 83
phalerata 115, 171
Philampelus achemon 101, 182
pandorus 101, 175
phylæus 176
philenor 73, 164
Philenor Butterfly 73
philodice 78
Philodice Butterfly 78
Pholisora catullus 98
Phoxtopteris nubeculana 153
phragmitidicola 186
Phyciodes harrisii 142
nycteis 83, 165
tharos 83, 163
phylæus 96, 171
picta 185
pictipes 149
PIERIDAE 76
Pieris oleracea 77
protodice 76, 173
rapæ 77, 179
pineum 146
Plants, List of 65
Platycerura furcilla 168
Platygaster error 212
Plusia brassicæ 140
pracationis 148
poeas 93
polistiformis 168
polyphemus 124, 176
pometaria 148
pomonella 151
portlandia 92
precationis 148
Pristiphora grossulariæ 69
identidem 69
rufipes 70
Prodenia commelinæ 138
lineatella 139
progne 85
promethea 125, 176
proteus 184
protodice 76, 173
pseudargiolus 95
pseudargyria 120
Pseudoglossa lubricalis 138, 182
Pseudothyatira cymatophoroides 129
Psychomorpha epimenis 111, 173
purgatus 41
Pyrameis atalanta 86
cardui 87, 153
huntera 86, 153
pyramidoides 140
pyri 167
Pyrophila pyramidoides 140
Pyrrarctia isabella 169

Q

PAGE.
quinque-maculata 104

R

Rainfall and Temperature, Table of 49
rapæ 77, 179
Raspberry Saw-fly 67
regalis 122, 102
renigera 137
repanda 41
Rice Bunting 41
robiniæ 152
rosaceana 153
rosea 66
Rose-fly 66
rubi 67, 108
rubicunda 221
rubricoma 132
rutipes 70
Rustic, Black 132
Lance 134
Reaping 134
Unarmed 134
rutilana 153

S

salicicola 69
salicis-gemma 69
salicis ovum 69
salicis pisum 68
salicis pomum 68
Samia cecropia 126, 177
Samia columbia 177
Samia cynthia 125
SATYRIDAE 90
sassacus 97
Satyrus alope 92
Satyrus nephele 92, 180
saucia 134
Saw-fly larvæ 64
scabra 148
scandens 133
Scepsis fulvicollis 171
scribonia 116
scrutator 41
scudderii 95
Selandria caryae 66
cerasi 67
juglandis 67
rosae 66
rubi 67
tiliae 67
vitis 67
Semicolon Butterfly 84
Semotellus destructor 210, 211
senatoria 120, 161
Senopetopia militaris 37
Sesia diffinis 99, 160
tenuis 159
thysbe 99
Smerinthus modestus 159
smilacis 93
Southern Cabbage Butterfly 76
sosybius 91
SPHINGIDAE 99
Sphinx catalpæ 104
chersis 105
coniferarum 105
drupiferarum 104
harrisi 105
kalmiæ 104
Sphinx pineum 105
Spilosoma virginica 116, 169
stigna 120
stimulea 117
Strawberry Saw-fly 68
strigosa 92
subgothica 132
subjuncta 136
superans 131
suturalis 41
sylvatica 123
Synopsis of Species 106
syringæ 109

T

Tachina-fly, Red-tailed 36
Yellow-tailed 37
talidiformis 180
Telea polyphemus 124, 176
Tenthredinella cinereola 180
TENTHREDINIDÆ (Saw-flies) 63
tenuis 159
Terias lisa 79
Terias nicippe 79
tersa 159
tessellaris 116, 168
tessellata 133
texana 164
textor 116, 154
tharos 83, 163
Thecla acadica 93
calanus 93
humuli 92
irus 94
m-album 92
niphon 94
poeas 93
smilacis 93
stigosa 92
titus 94
Thoas Butterfly 75
Thistle Butterfly 87
Thyreus abottii 100
Thyridopteryx ephemeræformis 118
thysbe 99
tiliæ 67, 109
iliaria 149
tipuliformis 107, 157
titus 94
tityrus 98, 153
Tityrus Skipper 98, 153
Tobacco-worm 103
Tolpe velleda 166
Tomato-worm 104
Tortrix fervidaua 155
Tremex columba 71
tricosa 132
trilineatus 68
troilus 74
Turnip Butterfly 77
turnus 74, 173

U

unicornis 147, 181
undulosa 159
unio 111, 173
unipuncta 5
Urocerus abdominalis 71
Urocerus albicornis 71
ursula 82, 162
UROCERIDAE 70
Utetheisa bella 113

V

Vanessa antiopa 85, 163
milberti 164
vanillæ 80
velleda 166
ventralis 68
ventricosus 68
versicolor 158
violans 139
virginica 116, 169, 170
viridescens 39
vitreus 39
vittata 44

W

PAGE.

wilcoxii 41

X

Xiphidria albicornis 71
mellipes 71
Xyleutes robiniæ 152

Y

PAGE.

Yellow Bear 116
Ypsilon 134

Z

ZYGÆNIDÆ 110